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Electrical World

NEWS ISSUE JANUARY 25, 1947

Walter Geist, President of Allis-Chalmers Manufacturing Co.—
The Longest Strike in the Electrical Industry Is His to Settle

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"WE INSTALLED G-E GAS-FILLED CABLE BECAUSE IT'S SELF-SUPERVISING AND SELF-HEALING"

H. W. CLARK
Ass't Engineer of Distribution
Potomac Electric Power Co.

HERE is cable that's self-supervising to give lower operating costs, self-healing to give better service continuity.

Mr. Clark, Engineer of Potomac Power, says: "One of the principal reasons for our selection of G-E gas-filled cable on a 10-mile 33-kv line was its self-healing and self-supervising feature. If the sheath is damaged, an alarm sounds warning, and we can feed reserve gas into the cable and wait until the load goes down before we repair it."

Gas-filled cable automatically gives your maintenance department the jump on outages. At the first signal of a leak a pressure relay operates an alarm. Compared with solid cables, which fail completely before warning of damage, resultant savings from early repairs may be as great as $1000 to $1500 each time the alarm sounds.

In addition, G-E gas-filled cable is self-healing under stress. Valving additional gas into the system acts to keep voids filled, suppresses ionization, and prevents penetration of moisture until a time when repair is practical.

With this combination self-supervising and self-healing feature, we believe that gas-filled cable, within its recommended voltage range, will serve profitably in your system. You can obtain more details by calling your nearest G-E office or writing for Bulletin GEA-3652. *General Electric Company, Apparatus Department, Schenectady 5, New York.*

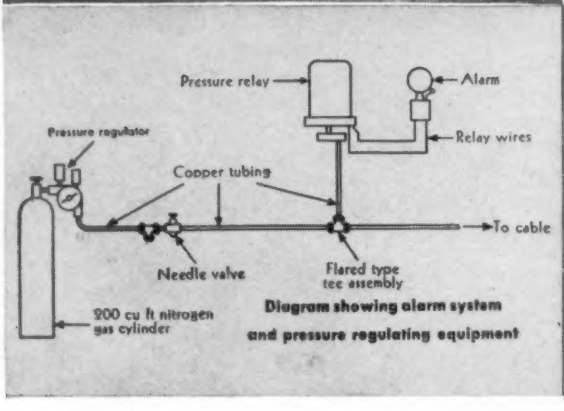

Diagram showing alarm system and pressure regulating equipment

Normal operating pressure of the pure, dry, inert nitrogen is between 10 and 15 pounds per square inch for low-pressure 10-kv to 40-kv lines. On 40-kv to 69-kv lines, the medium pressure is 40 pounds per square inch. In the diagram at left, the simplicity of the equipment is at once apparent. For GF cable lines up to 40,000 feet, a manually operated regulator and alarm system like this need be used at *but one end.*

GAS-FILLED CABLE

GENERAL ELECTRIC

ELECTRICAL WORLD

VOLUME 127 NUMBER 4

JANUARY 25, 1947

NEWS ISSUE

Conferences Reconciling BPA and Northwest Private Utilities

Representatives of 5 Business-Managed Companies, 2 City Systems Hold Series of Meetings with BPA Officials and Agree to Further Bonneville Plans for Good of Territory

RESOLUTION of the major differences between the Bonneville Power Administration and the privately owned electric utilities of the Pacific Northwest may result from a series of conferences now being held by these hitherto irreconcilable parties.

The meetings apparently were brought about by political expediency and economic necessity. Both parties now agree that increasing power demands are taxing the area's generating capacity virtually to the limit. The conferees also tentatively agreed to take some joint action to offset the reported determination of eastern Congressmen to slash Bonneville Power appropriations for 1948.

Representatives of Washington Water Power Co., Northwestern Electric Co., Pacific Power & Light Co., Puget Sound Power & Light Co., Portland General Electric Co., Seattle Department of Lighting, and Tacoma Department of Public Utilities already have held three meetings, with two more scheduled for this week. BPA officials participated in all except the first session, a preliminary conference held January 7 at the request of Tacoma city officials.

At the January 11 meeting, participants agreed that:

1. The federal government, as the operator of the Bonneville project, should assume responsibility for future power production requirements of the area.

2. The government should assume responsibility for building transmission lines from its hydroelectric plants to the major distribution centers.

3. The government and the principal distributors of Bonneville power—the five company and two municipal systems—should prepare a joint program for the future expansion of federal generating and transmission facilities.

Engineers of the companies, cities, and BPA, meeting in Portland on January 17, agreed on the general outline of a ten-year program of expansion of federal power projects in the Columbia Basin. It is expected that this program, if approved by executives of the several systems this week, will be presented to Congressional appropriations committees within the next 30 days.

Indications of a reconciliation between the companies and Bonneville were strengthened by unofficial reports on several of the conferences. According to these advices, BPA officials initially insisted upon a blanket endorsement by the companies and city systems of the Bonneville construction plans for fiscal 1948. This would include testimony by representatives of these systems before Congressional appropriations committees in behalf of Bonneville's budgetary requests.

Refusing such blanket support, the distribution system representatives reportedly countered with an offer to support requests for funds for new generating capacity and for federal transmission lines only to principal load centers. In return for their support the companies asked for long-term (five years, at least) contracts for their purchases of Bonneville power. The latter request was flatly rejected by BPA spokesmen. Conferences continued, and both sides admitted reaching "considerable agreement."

Interior Funds in Danger

Meanwhile Interior officials in Washington conceded that they were concerned over possible Congressional reductions of power funds in Interior's 1948 budget, on which a House subcommittee opened hearings this week. The same Interior sources predicted that Secretary Krug would "welcome" any agreement between the Northwest companies and BPA which would not violate "the letter or spirit" of the Bonneville Act. However, the Interior secretary is "opposed" to any modification of the act's provision granting preference in sales of energies to public bodies and cooperatives. This section of the act has been interpreted by Bonneville officials as forbidding the conclusion of long-term power sale contracts with private utilities.

However, Krug recently reiterated for the benefit of Bonneville and Reclamation Bureau officials a policy statement to which he committed himself upon taking office last March. This statement was to the effect that Interior's staff should not "proselytize or evangelize" to induce local people to go into the power business as retailers or dis-

Proof from Australia

How lack of power for hospitals may bring death was proved last week in Sydney, Australia. For ten years, John Francis McMahon had lived in an iron lung at the Royal Alexandria Hospital. A power breakdown for one hour made the iron lung inoperative. The youth, age 19, died.

ELECTRICAL WORLD—Published weekly by McGraw-Hill Publishing Company, Inc. Publication Office, 99-129 North Broadway, Albany 1, N. Y. RETURN POSTAGE GUARANTEED. Editorial and Executive Offices, 330 West 42nd St., New York 18, N. Y. Allow at least ten days for change of address. All communications about subscriptions should be addressed to J. E. Blackburn, Jr., Director of Circulation. James H. McGraw, Founder and Honorary Chairman; James H. McGraw, Jr., President; Curtis W. McGraw, Senior Vice-President and Treasurer; Joseph A. Gerardi, Secretary; Nelson Bond, Director of Advertising; Eugene Duffield, Editorial Assistant to the President; J. E. Blackburn, Jr., Director of Circulation. Subscription rates: Single copy 35 cents. In the United States, $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money at par.) Pan-American countries, $15 for one year, $25 for two years, $30 for three years. All other countries $20 for one year, $30 for two years, $40 for three years. Please indicate position and company connection on all subscription orders. Entered as second-class matter, November 10, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1947, by McGraw-Hill Publishing Company, Inc. All Rights Reserved. Cable address McGraw-Hill, New York. Member of A.B.P. Member A.B.C.

tributors. Strict enforcement of this policy would meet charges of utility people that BPA officials have attempted to induce local groups to form public utility districts or power cooperatives in competition with the Northwest companies.

Republican Congressman Robert Jones, Ohio, and Ben F. Jensen, Iowa, chairman and ranking majority member, respectively, of the House subcommittee on Interior appropriations, recently expressed dissatisfaction with the amounts and methods of repayments to the Treasury of the government's investment in the Bonneville and Grand Coulee projects. Jensen said that he would seek a thorough investigation of Bonneville's rate structure and repayment schedules.

Indicative of the present power supply situation in the Northwest was the Federal Power Commission's recent approval of an application of the Puget Sound Power & Light Co. to resume temporarily its war-time interconnections with the Washington Water Power Co., the Seattle municipal system, the Chicago, Milwaukee, St. Paul & Pacific Railroad, and with BPA at Renton and Bremerton, Wash.

In a report to Secretary Krug, Bonneville Administrator Raver advised that deliveries of power from Northwest Power Pool plants reached a record hourly peak of 2,574,000 kw. on January 17. This exceeded the top war-time hourly peak load of 2,233,600 kw. At the time of the new peak load, power reserves of the Northwest pool totalled 150,000 kw., of which only 108,000 kw. was classified as spinning reserve, Administrator Raver said.

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Energy Production Rose 14.9% in November

Production of electric energy for public use during November, 1946, totaled 19,953,960,000 kw.-hr., according to a report issued by the Federal Power Commission. This represents an increase of 14.9 percent over November, 1945. Combined utilities and industrial production was 23,954,212,000 kw.-hr. during November, an increase of 13.0 percent above November, 1945.

Average daily production of electric energy for public use in November was 730,914,000 kw.-hr., an increase of 5.2 percent in comparison with the average daily production during the previous month and an increase of 17.0 percent over November, 1945. Production by water power in November amounted to 6,273,845,000 kw.-hr., or 31.4 percent of the total output for public use.

Virginia Grants Governor Authority to Seize Utilities

Legislature Acts to Bar Strikes by Passing Law Penalizing Utility Firms, Unions, and Their Members

A law authorizing the governor to seize and operate public utilities as a means of averting strikes has been passed by a special session of the Virginia Legislature. A "right to work," or anti-closed shop, law outlawing any contract which made membership or non-membership in a union a condition of employment also was passed.

The seizure bill was put through as an "emergency" measure so as to enable Gov. William Tuck to use it in the event another strike is threatened by the International Brotherhood of Electrical Workers, A.F.L., against the Virginia Electric & Power Co. when their agreement ends in March. In fact, it was the union's threatened strike last year, averted when the governor inducted the workers in the state militia, which led to the new utilities strike-control legislation.

The new law imposes penalties against both sides under seizure as an incentive for them to settle their differences without delay. No means is provided for settlement other than voluntary agreement.

During government operation, the state will charge the utility 15 percent of net revenues. The union would not be permitted to picket and would lose the checkoff of union dues.

Governor Will be Notified

Under the new law, proposed by the governor, he would be notified of contract negotiations between a public utility and a union, giving him an opportunity to mediate the dispute if the parties can't agree.

If mediation fails, the governor would then be given five-week notice before a strike or lockout could legally begin. During the five weeks, he could inspect the property to consider government operation, ascertain that employees would work for the state, and arrange to train others if needed.

Persons violating the law would be guilty of a misdemeanor and subject to $10 to $1,000 in fines and up to one year in jail. Any lockouts or strikes which suspend or interrupt operation of the utility service will subject the employer or union to a penalty of up to $10,000 for each day that service is hampered.

In addition to the 15 percent operation charge, the utility would be required to reimburse the state for any costs incurred in training prospective replacements for those who quit work.

Any disagreement as to the amount due the state as an operation charge may be submitted by either the utility or the state to the Virginia Corporation Commission, whose decision may be appealed to the Supreme Court of Appeals.

The Senate deleted from the House version a provision that the government, during state operation, could discharge an employee only for cause.

The House concurred in this Senate amendment and another which lowered the charge against the utility from the 25 percent fixed by the House to 15 percent. It was explained, however, that the definition of "net revenue" was so changed that there was little difference between the two figures.

"Net revenue" under this law was described as income after deduction of operation and maintenance expense, depreciation, taxes, and interest on the utility's debt.

The period of state operation is not limited by the law. Wages and working conditions in effect at the start of negotiations would continue unchanged.

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Northwest Utility Merger Given Approval by FPC

The Federal Power Commission has approved the merger of electric facilities of the Northwestern Electric Co. and the Pacific Power & Light Co. in the states of Oregon and Washington. With this action, approval of the transaction by the public utility commissions of the two states is all that remains to make the merger effective. The Securities and Exchange Commission previously had given its sanction, pending action by other groups.

The two companies filed a joint merger application last july (ELECTRICAL WORLD, July 20, 1946, Page 82). Opposition developed on the part of a number of organizations, including the Oregon and Washington State Granges and the Independent Retail Grocers Association. These groups maintained that nothing could be gained by the merger and no rate reductions would result. The power commission ruled, however, that these objections were "lacking in substance." "The record shows," the commission found, "that the proposed merger is compatible with the public interest."

Under the merger agreement the Pacific Power & Light Co. is the surviving corporation. It will assume all liabilities of both companies and issue new mortgage bonds, notes and stock, retiring all outstanding securities of both companies.

Union Officers Discuss Offer of Allis-Chalmers to Strikers

Company Renews Previous Proposals at Meeting with Top Officers of U.A.W.-C.I.O.—Bargaining Election Set by Federal Judge for January 26 May End Rule of Local 248

(See Front Cover)

INTENSE and dramatic union activities were developing this week in an attempt to solve the Allis-Chalmers strike, which long since has dwindled down to only the West Allis Works. The efforts evidently are being expended in an attempt to save Local 248, U.A.W., and its affiliation with the C.I.O. since it has been reported that more than 40 percent of the pre-strike force of 11,000 production workers were walking through the picket lines to work full time.

Top members of the U.A.W. officialdom met Tuesday in Milwaukee and held a meeting with Allis-Chalmers officials at the home of the Rev. Ensworth Reisner. The company at this meeting repeated the offer that it had made to the union both before the strike started and last November. This offer was similar to that which brought settlement of the Pittsburgh strike but in addition guaranteed to production workers at the West Allis plant an hourly rate equivalent to or greater than that of comparable heavy industry workers in Milwaukee County.

Attending the meeting and representing U.A.W.-C.I.O. were Walter P. Reuther, president; R. J. Thomas, vice-president and director of the strike; Richard T. Leonard, second vice-president; and George F. Addes, secretary-treasurer. Company officials included H. W. Story, vice-president and general attorney; E. F. Ohrman, chairman of the negotiating committee; John L. Waddleton, attorney; and Arthur L. Brintnall. It was reported that officers of Local 248, the union which has been on strike 301 days, offered to resign if such action would facilitate settlement.

Thursday these officers or their representatives considered the company's offer at a meeting in Detroit but had reached no decision when this was written. But any agreement made before the bargaining election set for January 26 was subject to its outcome.

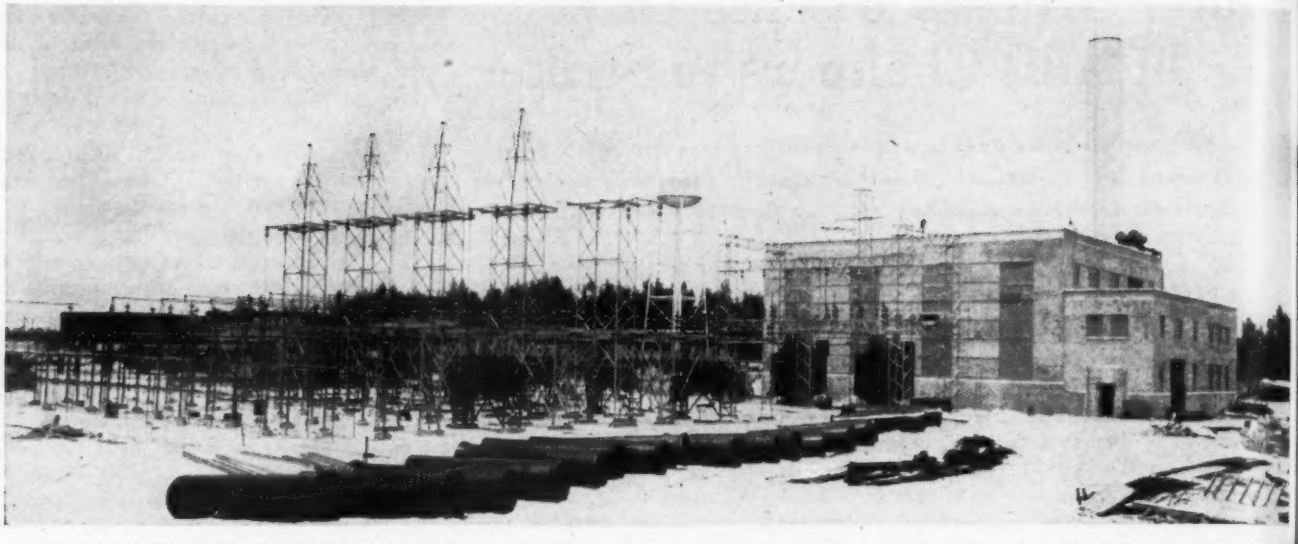
The election was ordered last week by Federal Judge F. Ryan Duffy to give the workers an opportunity to determine whether Local 248 should be retained as bargaining agent or whether it should be supplanted by an independent union. The Wisconsin Employment Relations Board is to supervise the election.

The outcome of this election can materially affect the solving of the strike problem as was the case in the Pittsburgh plant. There a new bargaining committee was chosen by the workers and shortly thereafter the strike was settled. Walter Geist, president of the company, in a telegraphic message to the employees stated at that time "The successful and satisfactory conclusion of this agreement between the company's negotiating committee and the new bargaining committee for the union is a testimonial of the fact that when reasonable men sit down to discuss their differences with sincerity of purpose moved only by a desire to deal fairly and to reach an agreement as early as possible, it can be done. The overwhelming support the union members gave their new bargaining committee speaks well for their faith in that leadership."

Contract provisions included irrevocable voluntary checkoff of union dues and assessments, rather than the continuance of membership requested by the union, and an increased arbitration setup covering such issues as equal pay for equal work, new job classifications, disciplinary measures, and seniority preferences. The employees accepted the company's long-standing offer of 13½ cents an hour wage increase, making a total increase of 18½ cents since V-J day.

This was the first break in the general strike which began on March 29. Since the Pittsburgh settlement all plants except West Allis have settled on virtually these terms. At West Allis, mass picketing, rioting and damage to property of company and working employees have been experienced. The penetration of "fellow travelers" into the West Allis local was charged by the company in a booklet entitled "Principle Represented: Communist—

PITTSBURGH PRODUCING—Back in full production of distribution transformers is the Pittsburgh Works of the Allis-Chalmers Manufacturing Co. This was the first of the company's plants to start producing after the series of strikes, which is still unsettled with the workers at the West Allis plant still out



MORE POWER FOR FLORIDA—General view looking northwest showing 66-kv. switchyard and south and east elevations of the Riviera steam plant of Florida Power & Light Co., where a 42,000-kw. unit is being installed. Sections of the 42-in. cast iron circulating water line have been moved to the approximate location of the line in preparation for installing

Would You Sign Your Name on This Line?" Herein the accusing finger was pointed at Local 248's officers, committee members (including the negotiating committee), shop stewards, and attorney.

The election of a new bargaining agent would reopen negotiations on a fresh basis. However, should the independent union win and be certified by the Wisconsin state board, a legal battle is foreseen. The presently recognized bargaining unit, Local 248, was certified by the NLRB nine years ago and will undoubtedly fight any unfavorable result.

Judge Duffy, undoubtedly foreseeing this action, stated in explaining the status of Local 248, that the fact that this union had previously been designated as the bargaining agent by NLRB certification "only means that they are to continue as long as they represent the majority of the workers.

"I feel it was not the intention of Congress to create any rights in unions which would override the rights of the workers. After all, unions are only agents. The NLRB may designate the units of collective bargaining, but it is silent on the manner of selection."

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Utility Supplying Co-op

Dubois Rural Electric Cooperative, Jasper, Ind., is now buying its power from the Public Service Co. of Indiana because the Jasper municipal plant could not supply the increasing demand of the co-op. The utility has erected a 33-kv. line and a substation to serve the co-op.

Edison Centennial Plans Indicate Wide Observance

All divisions of the electrical industry have indicated that they will take an active part in the Edison Centennial to be held in commemoration of the 100th anniversary of the birth of the inventor on February 11, 1847. The entire week, February 9-16, will be devoted to various observances.

The American Institute of Electrical Engineers is sponsoring through its sections a series of dinners on February 11. The most important of these will be held at the Waldorf-Astoria Hotel in New York under the sponsorship of the New York section.

Throughout February, electric utilities will feature the life and achievements of Edison in extensive newspaper advertising, radio programs, window displays, outdoor advertising, and other forms of advertising and publicity. They also plan to sponsor Edison dinners and luncheons, for gatherings of civic and business leaders. In many cities, parades, air shows, demonstrations of flood and sky lighting, and other special events will be staged as a part of the centennial activities.

At Fort Myers, Fla., once the winter home of the inventor, the Florida Power & Light Co. is cooperating with civic authorities in sponsoring the Edison "Pageant of Light."

The General Electric Co. will note the event in various ways, the Electrical Association of Philadelphia will sponsor a dinner on February 10 at which a tableau of the discovery by Edison of the secret of electric light will be given, and the Electrical Association of New Orleans will give a dinner the following week so as not to conflict with the New Orleans Mardi Gras.

The "Hour of Charm," sponsored by electric utility companies, will honor Edison on its February 9 broadcast when it will present his favorite songs.

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Clark Hill Project Bids May Be Rejected as High

All bids opened last week by the U. S. Army Engineers for construction of the reservoir dam of the Clark Hill multi-purpose project on the Savannah River near Augusta, Ga., are likely to be rejected as too high. This is the second time that bids have been received.

Low bid was $17,424,016 by Morris-Knudsen Co., Boise, Idaho, which is about 36 percent above the $12,835,036 estimate of the Engineers, without figuring profit. It is not likely that the bid will be accepted. Indications are that Washington authorities will reject the bids and order that the work be divided into several catagories so that a larger number of contractors can bid on all or any one of the different phases of construction.

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'Singing Wires' Preview

"Singing Wires," a motion picture portraying the advantages of an electrified farm, had its press preview this week in New York. The picture is sponsored by *Farm Journal*.

the New WESTINGHOUSE Life-Line MOTOR

It's completely new . . . it's completely different . . . it wraps up the advances made in "custom-built" wartime motors in a single package!

For 58 years, induction motors have been built fundamentally alike. Differences have been minor . . . improvements gradual. Today, in the new Life-Line, Westinghouse presents a major departure from accepted ideas of standard-motor limitations.

Life-Line, today, offers industry a truly all-steel protected motor. All exposed surfaces are HEAVY STEEL—frames of even the smallest sizes are 3/8" thick.

More compact power is packed in Life-Line. For example, on the 284 frame, size has been reduced 35%, although NEMA mounting dimensions have been maintained . . . starting torques are as much as 134% greater per pound of motor . . . maximum torques as much as 116% more per pound.

Electrical characteristics have been improved . . . new materials and new winding techniques give increased protection against electrical failure. And sealed, pre-lubricated bearings do away with need for greasing or attention for at least five years!

The Life-Line Motor, as a result, represents the biggest single step forward in design and construction since the invention of the electric motor 58 years ago. Life-Line Motors are now reaching the drives of industry by the thousands, but are not yet available in quantities to meet the unprecedented demand. So, look over Life-Line advantages now with an eye to your future requirements. Your local Westinghouse office can give you full details, or write to Westinghouse Electric Corporation, P. O. Box 2025, Buffalo 5, N. Y.

★ ★ ★

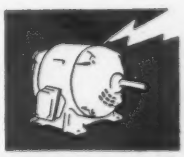
Life-Line Motors are now in production at the new Westinghouse Motor Works in Buffalo, N. Y. This plant is laid out, tooled and equipped to fully utilize newly developed production processes and techniques on a scale hitherto unequalled in the manufacture of electrical motors.

J-21406

LESS SPACE PER HP. Life-Line Motors occupy less space per horsepower than any other standard motor . . . making it easier to build into machines and install in cramped quarters.

MORE TORQUE PER LB. Life-Line Motors give as much as 134% higher starting torque per pound of motor . . . up to 116% higher maximum torque.

NO LUBRICATION FOR 5 YEARS. Life-Line Motors need no greasing for AT LEAST FIVE YEARS. Bearings are pre-lubricated . . . sealed against dirt and moisture.



IMPROVED WINDINGS. New insulating materials . . . new coil winding techniques . . . new stator slot designs . . . give the Life-Line new record-setting protection against electrical failures.

NEW QUIET SMOOTHNESS. Life-Line Motors cut vibration and noise to new low limits for standard motors . . . satisfy many "special motor" requirements.

NEW SLEEK LINES. The Life-Line has sleek lines . . . a smooth finish . . . discourages dust and dirt accumulations . . . harmonizes with modern machine and tool design.

Life-Line motors

New farm welder proves good load-builder

Lincoln limited input "Fleet-Arc Jr." approved by utilities and REA

The Lincoln "Fleet-Arc Jr." AC Welder.

AN alternating current arc welder, ideal for rural power lines, has been introduced by The Lincoln Electric Company of Cleveland.

The Lincoln "Fleet-Arc Jr." A.C. welder has already been approved by many private utilities, REA headquarters and many rural power cooperatives throughout the country. Utilities which have approved this welder for use on rural lines include: Public Service Commission of Wisconsin, Public Service Co. of Oklahoma, The Detroit Edison Co., Iowa-Illinois Gas & Electric Co., and The Toledo Edison Co.

Balanced load-building is aided in two ways by the "Fleet-Arc Jr.". Its limited input minimizes demand due to welding load, and its ease of operation encourages farmers and small rural shops to use it frequently for all sorts of repair and construction jobs. A new "Arc Booster", exclusive with Lincoln, makes the arc exceptionally easy to strike, simplifying welding and hard-facing of all kinds. Popularity of the welder increases its use and adds a more steady kilowatt-hour load to power lines.

This welder meets utility and REA requirements for 3 K.V.A. and 5 K.V.A. supply, and meets new N.E.M.A. standards.

For supply.....230 volts, single phase, 60 cy.

Current range.....20 to 180 amps.

Max. input current (at full welding load when operating off 230 volt input).....37 amps.

Idle input current.....7.5 amps.

Maximum output voltage..52 volts

Power factors:

At 100 amps., 30 volts.....85%

At 100 amps., 25 volts.....77%

At 180 amps., 25 volts.....70%

Current control is continuous.

Further details may be obtained from THE LINCOLN ELECTRIC COMPANY, Dept. 321, Cleveland 1, Ohio.

Repairing a post hole digger with the Lincoln "Fleet-Arc Jr." Welder.

Interior Department's Plants Had 15 Billion Kw.-Hr. Output

Report for Fiscal 1946 Includes Statistics of Operations of Reclamation Bureau, BPA, and SPA—3 Organizations Had 3,107,300 Kw. Capacity or 21% of United States Hydro

ELECTRIC GENERATING PLANTS under jurisdiction of power agencies of the Interior Department produced approximately 15,000,000,000 kw.-hr. of energy during the fiscal year ended June 30, 1946, according to statistics prepared for Interior's forthcoming annual report.

A summary statement by the Division of Power will show that plants of the Bureau of Reclamation, Bonneville Power Administration, and the Southwestern Power Administration generated 14,914,034,992 kw.-hr. Total installed capacity of these plants, as of last June 30, was 3,107,300 kw., or about 21 percent of the capacity of all hydroelectric plants in the United States, the report adds.

Construction Carried Forward

Reclamation Bureau plants, which had a total capacity of 2,178,197 kw. at the close of the fiscal year, produced 13,172,988,997 kw.-hr. Construction was carried forward on 13 dams and five power plants, and four dams, one generating plant and 352 miles of transmission lines were completed during the fiscal year.

These figures offer an interesting comparison with a recent Reclamation Bureau report on activities during the calendar year ended December 31, 1946. The latter report showed that installed capacity of the Bureau's plants had increased to 2,205,400 kw. Calendar year total for energy output—11,189,000,000 kw.-hr.—was below both the 1946 fiscal year figure and output during the 1945 calendar year, which was 12,800,000,000 kw.-hr.

Approximately 98 percent of all power produced by Reclamation plants during the calendar year was sold, and gross power revenues amounted to $21,428,000 as against $20,985,000 in 1945. Sixty-two percent of marketed power was sold to federal agencies, municipalities, states, and cooperatives; 34 percent to privately owned utilities and 4 percent to ultimate consumers. Public bodies and cooperatives bought this energy at an average rate of 1.7 mills per kw.-hr., private utilities at 2.2 mills, and ultimate consumers at 5.3.

As of December 31, the Bureau was operating 9,649 miles of transmission lines and had 979 additional miles under construction.

Power plants at Grand Coulee and Bonneville dams produced 6,236,280 kw.-hr. during the fiscal year ended last June 30, the Bonneville Power Administration report shows. Power revenues totalled $19,884,785, or 13½ percent less than income during fiscal 1945. BPA was operating 2,850 miles of transmission lines and 62 substations as of last June.

"Quick return of war-time power loads in the Pacific Northwest on a peace-time production basis," the report adds, changed the emphasis of BPA's program from "one of selling a power surplus to one of finding an adequate power supply for the immediate future and for the next few years." The "regional power shortage" can be met only by construction of more multiple purpose dams, additional transmission lines, and by the installation of additional generators at the Grand Coulee plant and "wherever else feasible."

The report lists seven developments which "should be started during the next few years" in order to meet growing power loads. These are McNary, The Dalles, and Foster Creek dams on the Columbia River, Detroit dam on the Santiam in Oregon, six dams on the Lower Snake River between Idaho and Pasco, Washington, Hungry Horse dam in Montana, and the installation of new generating units at Grand Coulee. All the dams listed have been authorized by Congress except The Dalles.

Bonneville Administrator Paul Raver also recently announced completion of an independent audit of BPA's power operations. The audit, he said, clearly demonstrated "that the present $17.50 per kw.-year wholesale rate is paying all costs of power operations in accordance with standard cost accounting principles."

A new surplus on power operations of $4,754,895, after payment of all operation, maintenance, depreciation and interest costs, was revealed by the audit, he added. The combined balance sheet for the BPA transmission system and the Bonneville and Grand Coulee projects listed total assets of $280,436,248 allocable to power, as of June 30, 1946. The principal item in the asset account was electric utility plant of $259,202,473, after deduction of depreciation reserves of $15,672,159.

Principal item among liabilities was

LARGEST MECHANICAL "BRAIN"—Harvard University's new calculating machine, "Mark II," will be installed next June at the U.S. Naval Proving Ground, Dahlgren, Va., where it will be available later for civilian use. Posed at a recent conference at Harvard are, left to right, W. A. Porter, wiring and assembly; R.V.D. Campbell, machine circuit designer; Prof. H. H. Aiken, co-inventor, general supervisor, and Applied Mathematics Department head; R. E. Wilkins, mechanical engineer; and F. G. Miller, electrical engineer, who will be in charge of the installation at the Naval Proving Ground

the federal government's unrepaid investment, which was estimated at $253,654,313, after returns to the treasury of $78,201,596. Net surplus was listed as $15,618,815.

Gross federal investment of $331,955,909 included all appropriations, allotments and WPA expenditures for power, as well as $41,799,559 in interest on investment, Administrator Raver said. Revenues during fiscal 1946 were $19,884,285 as compared with $22,990,018 during 1945.

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Canadian Output Statistics

The Dominion Bureau of Statistics has released the following output statistics of Canadian central electric stations in thousands of kilowatt hours.

Period	1946	1945
Eleven months	37,931,552	36,811,898
Primary	29,463,940	29,624,414
Secondary	8,467,612	7,187,484
Exports to U. S.	2,306,263	2,413,509
November	3,566,702	3,236,986
Primary	2,888,861	2,552,585
Secondary	677,841	684,401
Exports to U. S.	140,005	218,587
October	3,550,001	3,309,021
Primary	2,844,171	2,656,028
Secondary	705,830	652,993
Exports to U. S.	183,108	224,801

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J. Leo Scanlon Dies

J. Leo Scanlon, well known in the electrical industry as a manufacturers' agent, died on January 20 in Buffalo, N. Y., as the result of a heart attack. Since 1922 Mr. Scanlon was head of the J. Leo Scanlon Co., with offices in Buffalo and New York.

Second Hearing Ordered on Sale of Utility to P.U.D.

Reversing an opinion of the day before, newly seated Chief Justice Joseph A. Mallery of the Washington State Supreme Court on January 14 reset the much publicized case involving the proposed purchase of Puget Sound Power & Light Co. properties by Skagit County P.U.D. for a re-hearing January 30 at Olympia.

On taking office Justice Mallery had vacated his predecessor's order for a rehearing, ruling that since the Supreme Court had deadlocked 4 to 4 on the case, the action of the Skagit County Superior Court should stand. The superior court had upheld the legality of the proposed deal.

The case originated when the Skagit County P.U.D. proposed to issue $135,000,000 in revenue bonds to purchase the utility. To test legality of the proposed purchase, John Wylie, secretary of the P.U.D., refused to sign and seal the revenue bonds. The other two P.U.D. commissioners brought a friendly action against Wylie to force him to sign. The Skagit County Court approved the proposed purchase.

Wylie then appealed to the State Supreme Court, where the judges were unable to reach a decision after the first hearing. The January 30 hearing will be held before two new judges, in addition to seven of the nine present at the first hearing. The deadlock resulted when the ninth judge went to Europe on leave of absence.

MEETINGS

American Society of Mechanical Engineers—Spring meeting, Mayo Hotel, Tulsa, Okla., March 2-5. Ernest Hartford, executive assistant secretary, 29 West 39th St., New York 18, N. Y.

National Electrical Manufacturers Association—Spring meeting, Edgewater Beach Hotel, Chicago, March 3-5. W. J. Donald, managing director, 155 E. 44th St., New York 17, N. Y.

Canadian Electrical Association—Western conference, Hotel Vancouver, Vancouver, B. C., March 3-5. B. C. Fairchild, managing director, 704 Tramways Building, Montreal, Canada.

Midwest Power Conference—Palmer House, Chicago, March 31-April 2. Prof. Stanton E. Winston, director, Illinois Institute of Technology, Chicago 16, Ill.

Edison Electric Institute—Annual Sales Conference, Edgewater Beach Hotel, Chicago, March 31-April 3. H. S. Bennion, managing director, 420 Lexington Ave., New York 17, N. Y.

Southeastern Electric Exchange—Spring Conference of the Engineering and Operation Section, Sheraton Bon Air Hotel, Augusta, Ga., March 20-21. J. W. Talley, executive secretary, 303 Haas-Howell Building, Atlanta 3, Ga.

Previously Listed

American Institute of Electrical Engineers—Winter meeting, New York, January 27-31.

Electrical Engineering Exposition—71st Regiment Armory, New York, January 27-31.

Edison Electric Institute—Prime Movers Committee, Van Curler Hotel, Schenectady, N. Y., February 3-4; Industrial Power and Heating Section, Hotel Continental, Kansas City, Mo., February 5-7; Transmission and Distribution Committee, Atlanta Biltmore Hotel, Atlanta, Ga., February 10-11; Meter Committee, Robert Treat Hotel, Newark, N. J., February 10-12; Electrical Equipment Committee, Atlanta Biltmore Hotel, Atlanta, Ga., February 12-13.

Missouri Valley Electric Association—Annual Power Sales Conference, Hotel Continental, Kansas City, Mo., February 5-7.

Association of Edison Illuminating Companies—Committee on Metering and Service Methods, joint meeting with E.E.I. Meter Committee, Robert Treat Hotel, Newark, N. J., February 10-12.

Pennsylvania Electric Association—Systems Operation Committee, Lord Baltimore Hotel, Baltimore, Md., February 13-14. Electrical Equipment Committee, Penn-Harris Hotel, Harrisburg, Pa., February 20-21. Transmission and Distribution Committee, Penn-Harris Hotel, Harrisburg, Pa., February 20-21.

American Society for Testing Materials—Spring meeting and committee week, Benjamin Franklin Hotel, Philadelphia, Pa., February 24-28.

SEC RULINGS

The Securities and Exchange Commission recently issued a series of orders affecting electric utility companies.

ENGINEERS PURLIC SERVICE CO.'s amended dissolution plan, which was modified to meet the suggestions of the commission, has been approved. The Federal District Court at Wilmington set a hearing for February 17 on the commission's application for an order to enforce the plan. As amended the plan provides for: (1) Distribution of Gulf States Utilities Co.'s common stock through sale at $11.50 per share under warrants issued to Engineers' common stockholders; (2) Deletion of the proposed bank loan and the obtaining of the required funds from special dividends declared by three operating subsidiaries—Gulf States, El Paso Electric Co. and Virginia Electric & Power Co.; (3) Retirement and cancellation of Engineers' outstanding preferred stock by depositing in trust an amount equal to $105 per share plus accrued dividends for each share of $5 preferred and $110 per share plus accrued dividends for each share of $5.50 and $6 preferred, and (4) Dissolution of Engineers. Common stock of El Paso will be distributed in liquidation pro rata to Engineers' common stockholders on the basis of one-fifth of a share for each share of Engineers' common held, and 94.4 percent of the common stock of Virginia will be distributed pro rata to Engineers' common stockholders on the basis of 1.45 shares for each share of Engineers' common held. (Release No. 7119).

FRONTIER POWER CO.'s and J. G. WHITE & CO.'s amended application filed jointly, providing, among other things, for a change in Frontier's authorized capital stock, consisting of 20,000 shares of common stock, $100 par value, to 140,000 common shares, $5 par value, has been approved. Frontier would issue the new stock to its common stockholders, pro rata, in exchange for the 20,000 shares outstanding. White & Co., as the owner of 13,333 shares of Frontier's common stock, will receive 93,333 shares of the new common. Frontier also proposes to issue to White its note for $207,000 to be dated September 30, 1947, and bearing interest at the rate of 2½ percent per annum, in exchange for its outstanding note of a like amount held by White, which matured on September 30, 1946. (Release No. 7126).

UNITED CORP. has been authorized to pay a quarterly dividend of 75 cents a share which accrued on its $3 cumulative preference stock January 1. The proposed dividend payment will total about $852,149. (Release No. 7121).

MILWAUKEE ELECTRIC RAILWAY & TRANSPORT CO.'s plan to redeem, at the principal amount, $950,000 of its first mortgage 4 percent bonds and to purchase for cash at par, or $100 a share, 9,500 shares of its capital stock for retirement, has been approved. Both the bonds and the capital stock are owned by its parent, Wisconsin Electric Power Co., which is a subsidiary of the North American Co. (Release No. 7113).

NEWS ABOUT PEOPLE

B. L. England Elected V-P of Atlantic City Utility

Bayard L. England has been elected vice-president-general manager of the Atlantic City Electric Co., Atlantic City, N. J., succeeding R. E. Swift, retired.

Mr. England started with the engineering department of the Atlantic City

B. L. ENGLAND

Electric Co. in 1924. He was transferred to Ocean City as division manager of the central division in 1929 and returning to Atlantic City six years later, he was appointed commercial manager. He was promoted to the position of assistant general manager of the company in 1941. Mr. England became general manager of the company in April, 1946, in which capacity he still serves in addition to his recent appointment as vice-president.

Mr. Swift has retired after completing 35 years of service with the Atlantic City Electric Co. and other member companies of the American Gas & Electric system.

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▶ WILLIAM D. FALLS has been appointed general manager of the Manitoba Power Commission, Winnipeg, Canada.

▶ A. L. CHAPLIN has been appointed manager of the Central Electric Cooperative with headquarters at Redmond, Ore., succeeding Morgan Sharp. Mr. Chaplin, has been engaged in rural electrification work for eight years, and has been with the Central Oregon co-op for the past two years.

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R. S. Keefer Appointed Okonite Vice-President

R. S. Keefer, formerly sales manager, has been appointed vice-president in charge of sales and will be responsible for directing all sales activities of The Okonite Co., Passaic, N. J., and its Hazard Insulated Wire Works Division, as well as those of its affiliate, the Okonite-Callender Cable Co., Inc.

F. E. Bankwitz has been appointed manager of the company's Washington office, 550 Munsey Building, to replace R. Soutter, who has been granted a leave of absence effective March 1.

D. W. Nurse, formerly of the San Francisco office, has been made man-

R. S. KEEFER

ager of the Portland office, 907 Terminal Sales Building, Portland, Ore.

W. R. Van Steenburgh has become manager of Okonite's New York territory, 501 Fifth Ave., New York 17, N. Y. This appointment is in addition to his duties as manager of the company's light and power department.

Prior to his assignment at the Passaic plant, Mr. Keefer was assistant sales manager of the company's Hazard Insulated Wire Works Division at Wilkes-Barre, Pa. He started his career in the Hazard insulating mill in 1922, later entering the sales department in which he has been active for the past 20 years.

McManus Takes Office As Vice-President in Atlanta

C. B. McManus, who was recently elected a vice-president of the Georgia Power Co., Atlanta, (ELECTRICAL WORLD, December 28, page 10), has

C. B. MCMANUS

been connected with that utility company since 1927 as superintendent of district operations, assistant operating manager and assistant to the president.

After receiving an engineering degree from Alabama Polytechnic Institute and after service as an officer in World War I, he joined the Alabama Power Co. in 1919. Before going to Georgia he operated the Muscle Shoals steam plant and was a division manager at Birmingham and Huntsville, Ala.

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▶ ROBERT T. NASH, who has been connected with the Central Ohio Light & Power Co. in Wooster, Ohio, for 15 years, and for the past year in Findlay, Ohio, has been appointed business manager of the Central Louisiana Electric Co., Alexandria.

▶ COL. WILLIAM KELLY, chairman of the executive committee of the Buffalo Niagara Electric Corp., was honored on January 14 by a group of his associates at a dinner and reception at the Hotel Statler, Buffalo. Col. Kelly is retiring this month after a 20-year association with the power utilities of western New York and will fly to Germany from Bos-

ton on January 28 to become chief of the the Public Utilities Section, Industrial Branch, of the Office of Military Government in Berlin. President A. T. O'Neill of Buffalo Niagara Electric was toastmaster at the dinner, which was attended by 140 guests from all divisions of the Niagara Hudson System. Tributes were paid to Colonel Kelly by several of the company executives.

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Allis-Chalmers Makes New Executive Appointments

Announcement of the appointment of R. T. Stafford as assistant to Vice-President W. C. Johnson, and J. W. McMullen as general manager of the Pittsburgh Works of the Allis-Chalmers Mfg. Co., has recently been made by the

R. T. STAFFORD

company. D. G. McArn continues as works manager of the Pittsburgh plant.

Mr. Stafford, who since 1928 has been assistant manager of the electrical department in charge of the engineering and commercial activity of the Pittsburgh Works, will operate out of New York City in his new capacity. He joined A-C in 1905 as a salesman in the Buffalo district office. He has been active in the affairs of the National Electrical Manufacturers Association, serving as chairman of its transformer section and as a member of the board of governors. He is also a fellow of the American Institute of Electrical Engineers.

Mr. McMullen has been assistant manager of the Pittsburgh transformer section since March, 1945. He started with the Pittsburgh Transformer Co. in 1917, was transferred to sales work in 1925 and continued in that capacity when Allis-Chalmers absorbed the Pittsburgh organization in 1928. As general manager of the Pittsburgh Works, Mr.

J. W. MCMULLEN

McMullen reports directly to President Walter Geist. He will have full responsibility for the successful operation of Pittsburgh Works within policies of the company prescribed by divisional heads at Milwaukee and approved by the president, except that all matters of collective bargaining, handling of grievances and other direct contacts with labor organizations shall be the responsibility of the vice-president in charge of manufacturing, J. M. White.

OBITUARY

▶ DR. COLLINS P. BLISS, dean emeritus of New York University College of Engineering, died suddenly on December 27 of a heart attack. He was 80 years of age. Dr. Bliss was dean of the New York University College of Engineering from 1930 to 1936. In 1937 the college dedicated in his honor the Bliss Building, containing classrooms and power plant at University Heights. Dr. Bliss was born in Carlisle, Pa. He was a member of the American Society of Mechanical Engineers and the American Society for Engineering Education.

▶ JAMES B. CASEY, 68, public relations director of the New England Power Association, Boston, Mass., died in that city on December 27. Born in Lowell, Mass., he served in various city governmental positions and was mayor for two years during his early career before joining the uitlity system in 1926.

▶ CLARENCE WILSON, 59, assistant engineer in the electric operations department of the Pacific Gas & Electric Co., was killed December 12 when struck by a bus in San Francisco. Mr. Wilson was graduated from Stanford University as a civil engineer in 1910, doing valuation work for various private companies and the Interstate Commerce Commission until entering service with the U. S. Army Engineers in World War I. He joined the P.G.&E. staff in 1919, again doing valuation work in hydroelectric development in the executive engineering department. A few years later he began work for the operations department as assistant engineer, a position he held until his death.

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J. J. Little

J. J. Little, vice-president and general manager of the Northern British Columbia Power Co., Prince Rupert, B. C., died recently at Rochester, Minn., following an operation. He was 57 years old.

A native of Edinburgh, Scotland, Mr. Little, after his arrival in Canada in 1909, worked on various construction jobs, engaging in electrical work on the first plant installed in Prince Rupert for the City Municipal Public Utilities. After service in World War I, he returned to City Utilities, remaining with the municipal undertaking until it was purchased by the Power Corp. of Canada in 1929. When the local company was formed under the name of Northern British Columbia Power Co., Ltd., Mr. Little was appointed general manager of the company and its subsidiaries, assuming the vice-presidency in addition in 1945.

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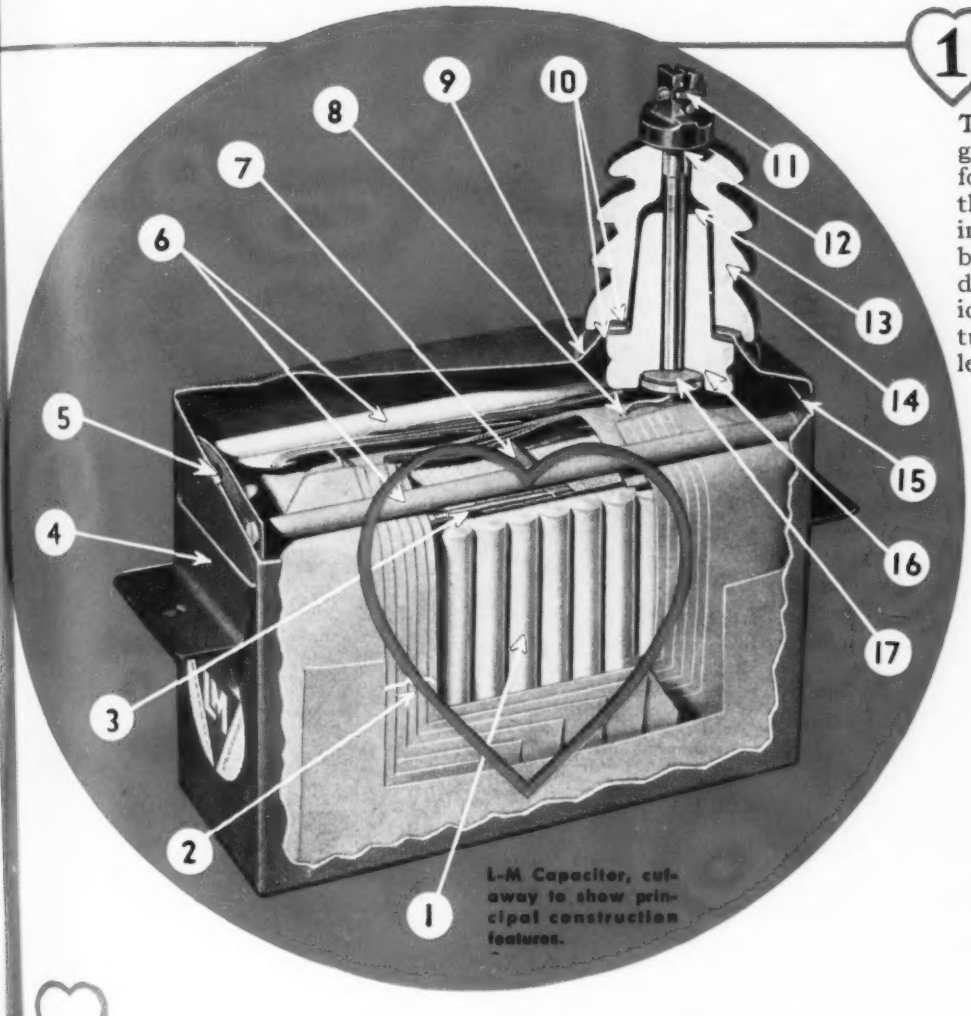
▶ ERNEST E. WHITNEY, formerly supervisor of the tax department of Central New York Power Corp., died on January 1 in Kingston, N. Y. Mr. Whitney had retired last August after 21 years of service with Central New York Power and other Niagara Hudson companies. He formerly served as manager of the Peoples Gas & Electric Co., which later became a part of Central New York Power. Mr. Whitney went to Syracuse in 1931 and in 1933 was appointed supervisor of taxes for the companies comprising the central division of the Niagara Hudson System.

▶ FREDERICK W. SCHNEIDER, retired electrical engineer and instructor, died on December 28 at his home in New Rochelle, N. Y., at the age of 71. A graduate of Rose Polytechnic Institute, Terre Haute, Ind., he worked for the General Electric Co. at Schenectady and for the Cramp Shipyard of Philadelphia, where he was in charge of electrical engineering for two ships built for the Russian Navy between 1900 and 1903. Subsequently Mr. Schneider served for ten years as electrical inspector of buildings in New York.

The Life of a Capacitor Depends on its "HEART"



L-M Capacitor, cutaway to show principal construction features.

1 The "heart" of a capacitor is the aggregate of its packs. The quality of metal foil, insulating tissue, and impregnant, the care and conditions of winding and impregnation . . . these factors, combined with conservative unit stress, determine the length of life and serviceability of the capacitor. This feature of L-M Capacitors is described at left below diagram.

Other L-M Capacitor Features:

2 *Major Insulation;* a multiple cover of top grade Kraft paper.

3 *Wire* for connecting packs in series-parallel arrangement.

4 *Finish;* 3 coats alkyd resin type paint, oven baked; highly durable.

5 *Seal-off Hole,* with copper plug soldered in.

6 *Dowels* (two); prevent shifting of packs within tank.

7 *Discharge Resistor;* for safety in handling Capacitor; drains off charge to potential of 50 v. or less within 5 minutes.

8 *Leader* from pack to bushing.

9 *Rain Shed;* assists in maintaining moisture-proof seal.

10 *Gaskets* above and below rain shed, of cemented resin bonded cork.

11 *Terminal;* advanced clamp design; will take at least two conductors; parts cannot fall off during connection.

12 *Outer Bushing Gasket.*

13 *Bushing Sealer;* entire space between inner and outer porcelain filled with compound, which increases internal flashover value and eliminates corona.

14 *Outer Porcelain* (wet process).

15 *Metal End Plates;* anchor the dowels and packs.

16 *Inner Porcelain* (wet process).

17 *Inside Bushing Gasket.*

How a strong HEART is built into every Line Material Distribution Capacitor

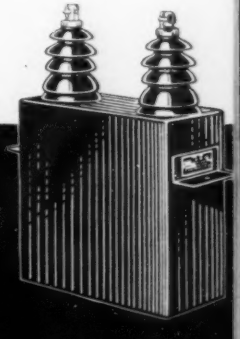
The ratio between operating voltage applied to the foil plates and total thickness of insulating tissue separating these plates reveals a relatively low unit stress.

Thus the insulation is not worked so hard, with consequent reduction in heating per unit volume. Such design characteristics in the L-M Capacitor assure the most economical, trouble-free service.

L-M Capacitor packs are wound in air that is clean and closely controlled as to temperature and humidity. Each assembled capacitor is dried under high vacuum and impregnated with "Elemex" insulating liquid by L-M's exclusive "capillary impregnation" method. Each unit is treated separately, and is constantly tested for electrical efficiency. Each must meet high and rigid standards.

SIZES AND STANDARDS. These capacitors meet all AIEE-NEMA standards for outdoor capacitors with respect to voltage rating, kva, losses, bushing flashover, over-voltage test, insulation strength, radio noise, heating and discharge resistors.

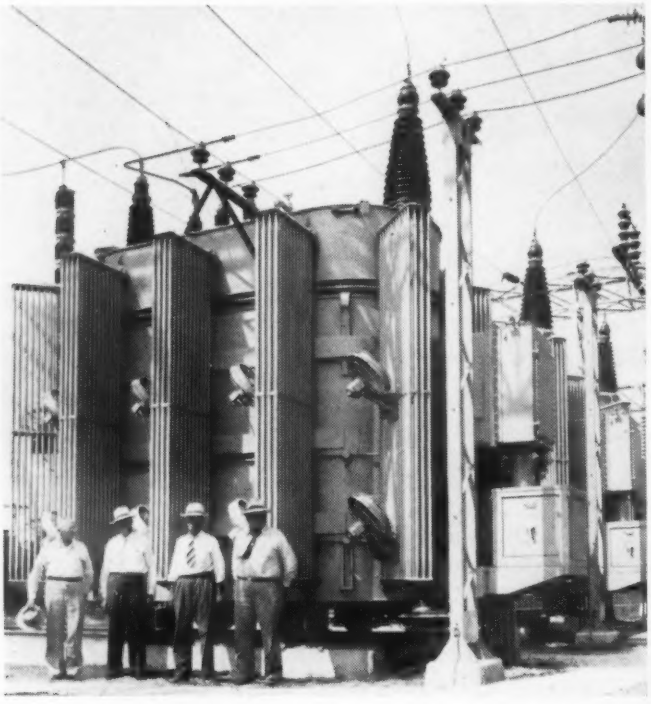
L-M Distribution Capacitors are now produced in sizes 15 KVA, 2400 to 13,800 volts, and 10 KVA, 2400 and 4160 volts. For further information write to Line Material Company, Milwaukee 1, Wisconsin.



LINE MATERIAL CAPACITORS

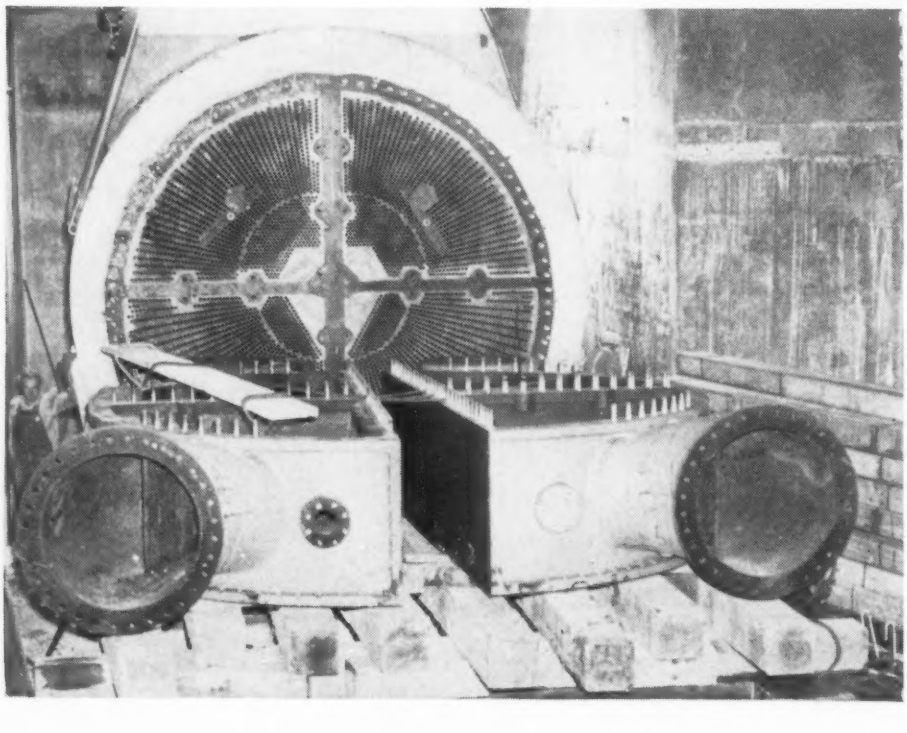
L-M DISTRIBUTION EQUIPMENT INCLUDES: Distribution Transformers • Fuse Cutouts and Fuse Links • Lightning Arresters • Oil Switches • Pole Line Hardware • Line Construction Specialties • Underground Equipment • Fibre Conduit • Street and Airport Lighting Equipment • Wired Radio Control Equipment • Capacitors

THE INDUSTRY IN PICTURES



GIANT TRANSFORMERS—Alabama Power Co. has completed installation of this 60,000/90,000 kva. automatic transformer bank at the Gadsden steam plant. The rapid increase in power demand in the area is being met by larger equipment. Left to right are Lane L. Thigpen, general foreman of the plant; W. M. Wade, Gadsden District manager; Richard Hudson, superintendent of the plant; and W. O. Finch, general foreman, Construction Department, Alabama Power Co.

CHILEAN HYDROELECTRIC PROJECT—Looking out of the entrance of Tunnel No. [illegible] of the El Sauzal hydroelectric project, south[illegible] Santiago, Chile. The tunnel is one of five [illegible] will be used to divert waters of the Cachap[illegible] River through the mountains. The project[illegible] being erected by the Empresa Nacional [illegible] Electricidad. With a capacity of 73,000 kw[illegible] will be the largest hydroelectric installation[illegible] Chile. The dam will be 130 ft. high and [illegible] be more than 1,000 ft. long



CONSTRUCTION AT TYRONE—Conde[illegible] shell for generator No. 1 moves into plac[illegible] the Tyrone steam plant of the Kentucky [illegible] ties Co. The first of two 25,000-kw. West[illegible] house generators is expected to be in oper[illegible] by July. The company plans the even[illegible] installation of four 25,000-kw. units in [illegible] new station. The plant, which is located [illegible] the Kentucky River, will cost nearly $8,00[illegible] and is a part of the utility's program to a[illegible] adequate power for all consumers

AMITE HELPS AT DAVIS DAM—A
e of dynamite is used to flatten the
walls of the channel through which
olorado River will be diverted during
onstruction of the $46,000,000, earth
ock-filled Davis Dam which will be 67
below Boulder Dam. The power
will be erected at the lower left of
hoto. Total capacity of the project
e 220,000 kw. supplied by five 45,000-
enerators

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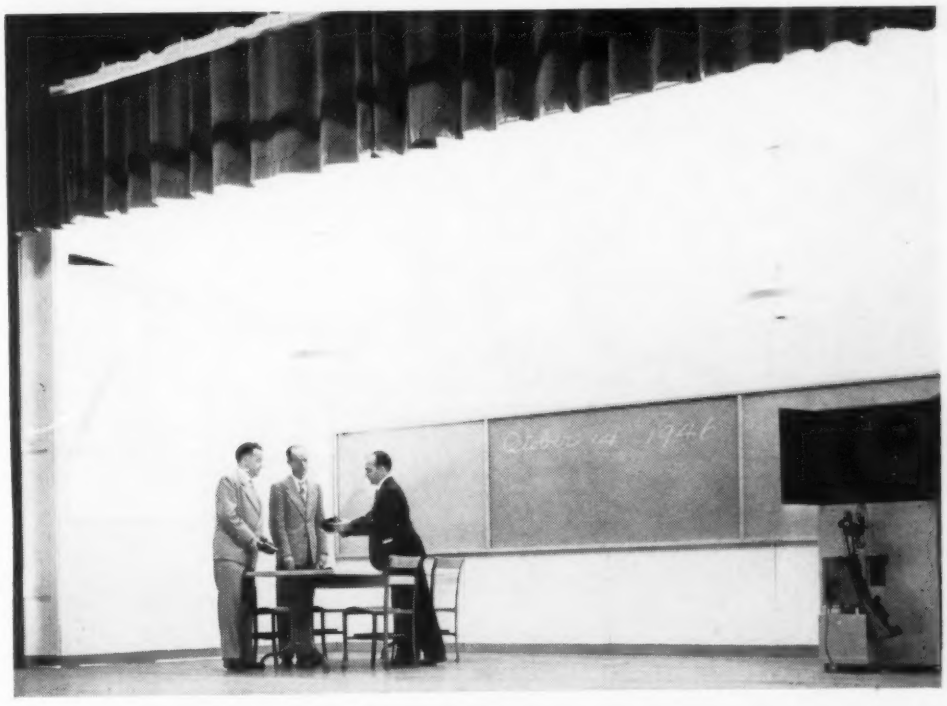
HERS WERE DELIGHTED—South-
alifornia Edison Co. has concluded a
of meetings during which proper
g was demonstrated to school teachers
e aid of a full-scale model of a mod-
ssroom. The course was part of the
Teachers Institute conducted by the
ngeles County Board of Education.
K. Sampson, right, company illumi-
engineer, checks meter for light
with George Rankin, left, director of
g, and Charles D. Gibson, California
ment of Education



ALL 4 ARE *Built-in!*

- OPERATING SAFETY
- SYSTEM FLEXIBILITY
- SPACE SAVERS
- EYE-APPEAL

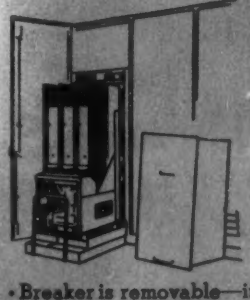
Westinghouse Outdoor Unit Substation rated 3000 kva, completely metal-clad, is tamper-proof and safe in any suburban location.

WHEN YOU SPECIFY WESTINGHOUSE UNIT SUBSTATIONS

More and more power companies are installing Westinghouse Unit Substations because they meet these four basic requirements of the modern substation—with fully built-in features:

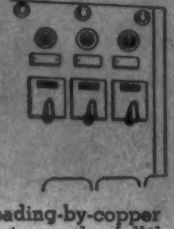
1. **Safety of operation and maintenance**—assured by removable breakers, steel barriers, positive interlocking, "De-ion" arc interruption, insulated busses, loading-by-copper temperature (makes full transformer thermal capacity safely available).
2. **System flexibility**—provided by interchangeable, "Unitized" switchgear units, allowing additional feeder units to be applied simply. Unit capacities can be selected to meet existing needs, yet provide for expansion.
3. **Compactness**—twice the capacity of conventional open substations in half the space lowers real estate costs and permits location in areas otherwise unavailable for substation use.
4. **Modern appearance**—close-coupled throat connection, with units of uniform height, gives the "eye-appeal" so important in residential areas.

These and other reasons—mobility . . . versatility of application . . . the advantages of "Unitized" switchgear . . . make Westinghouse Unit Substations the answer in distribution planning. For complete information, call your Westinghouse office, or write for B-3238 to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-97119



• Breaker is removable—in minutes—with full safety to operator.

• Minimum installation time and over-all cost.



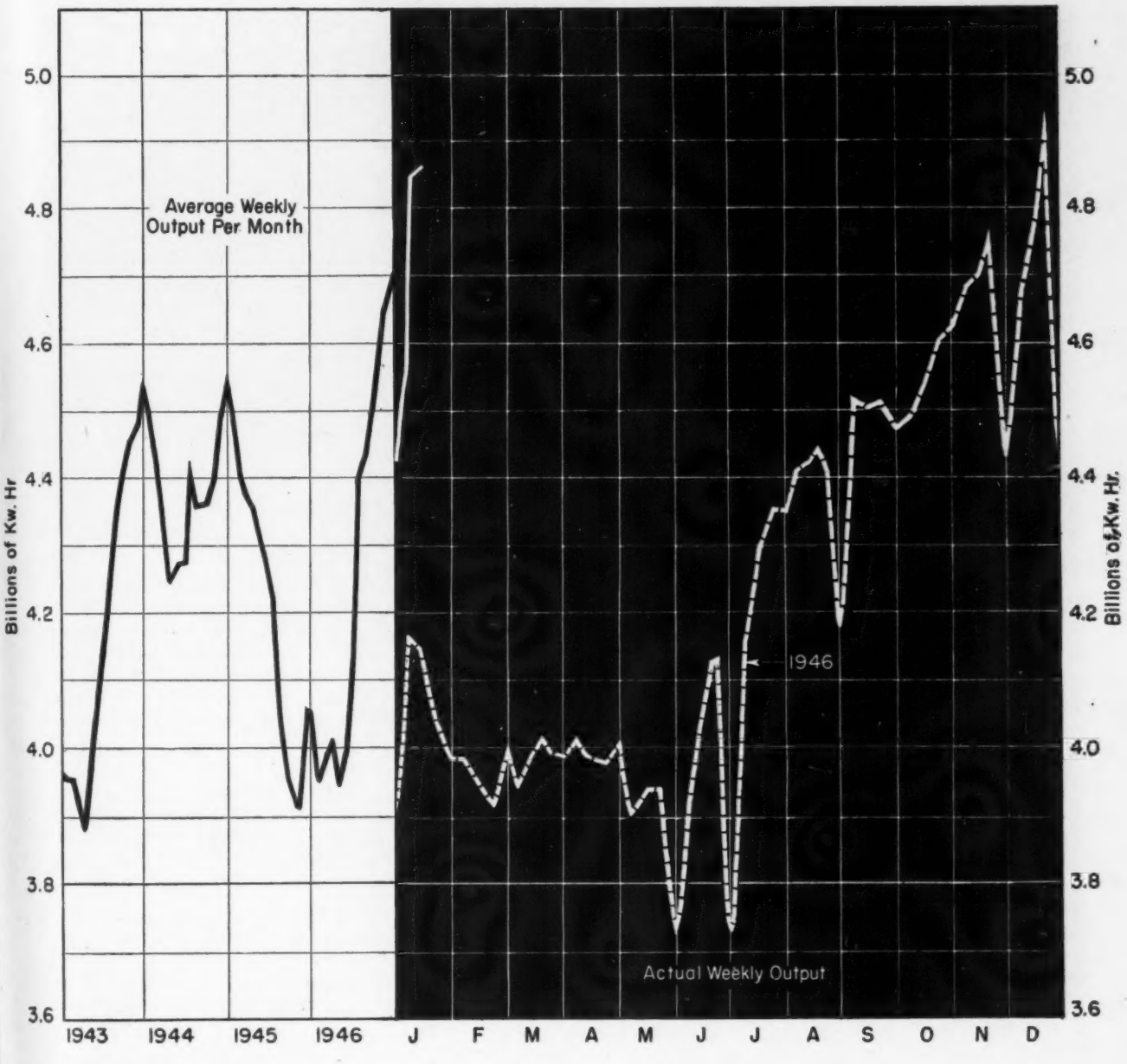
• Loading-by-copper temperature makes full thermal capacity of transformer safely available.

• No costly structure loss—entire substation can be easily moved to new location.

For Single Feeder Substations—the last word in "Packaged Power"—the Westinghouse CSP Power Transformer performs all functions of a conventional substation.

Westinghouse **UNIT SUBSTATIONS**

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE



Utility Gets City's Output

Output of Eugene, Ore.'s, municipally owned hydroelectric plant at Leaburg, Ore., will be turned over to the Mountain States Power Co. for a three-months period to help relieve a power shortage in the Albany, Ore., area. Virtually all of the plant's 7,000-kw. capacity will be used by Mountain States.

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60 Instead of 25 Cycles

The 80,000-hp. hydro installation which is under construction along the Madawaska River near Stewartville, Ont., will generate on a 60-cycle frequency instead of on a 25-cycle frequency as originally planned, the Ontario Hydro-Electric Power Commission has announced.

Output Curve Moves Slightly Upward

The electric output curve edged slightly upward during the week ended January 18, 1947, according to figures released by the Edison Electric Institute.

Reports show that the amount of electrical energy distributed by the light and power industry during the week amounted to 4,856,890,000 kw.-hr., comparing with 4,852,513,000 kw.-hr. during the preceding week. During the week ended January 19, 1946, the amount of electrical energy distributed totaled 4,145,116,000 kw.-hr., this year's figure representing an increase of 17.2 percent. The over-all increase for the week ended January 11 as compared with the previous year was 16.6 percent.

Pacific Coast states continued to hold the lead with an increase of 23.8 percent, with the Southern States running a close second—22.0 percent. The most substantial change was shown by the West Central group.

Weekly Output, Millions Kw.-Hr.

1947		1946		1945	
Jan. 18	4,857	Jan. 19	4,145	Jan. 20	4,588
Jan. 11	4,853	Jan. 12	4,163	Jan. 13	4,614
Jan. 4	4,574	Jan. 5	3,865	Jan. 6	4,427
1946		**1945**		**1944**	
Dec. 28	4,442	Dec. 29	3,759	Dec. 30	4,226
Dec. 21	4,940	Dec. 22	4,239	Dec. 23	4,617
Dec. 14	4,778	Dec. 15	4,154	Dec. 16	4,563
Dec. 7	4,673	Dec. 8	4,097	Dec. 9	4,538
Nov. 30	4,448	Dec. 1	4,043	Dec. 2	4,524
Nov. 23	4,765	Nov. 24	3,841	Nov. 25	4,369
Nov. 16	4,700	Nov. 17	3,985	Nov. 18	4,450
Nov. 9	4,682	Nov. 10	3,948	Nov. 11	4,397
Nov. 2	4,628	Nov. 3	3,899	Nov. 4	4,355

Percent Change from Previous Year

	Jan. 18	Jan. 11	Jan. 4
New England	+10.4	+12.7	+13.2
Mid-Atlantic	+10.1	+10.2	+10.7
Central Industrial	+18.5	+15.1	+16.5
West Central	+13.8	+ 7.6	+17.9
Southern States	+22.0	+23.8	+26.3
Rocky Mountain	+ 8.6	+11.8	+13.7
Pacific Coast	+23.8	+24.7	+24.1
Total United States	+17.2	+16.6	+18.3

MANUFACTURERS & MARKETS

Good Production and Cooperation Record Benefits Employees of Rome Cable

Bonus pay checks distributed on January 10 were the result of "your fine cooperation and good production record during the trying days of 1946," H. T. Dyett, chairman of the board, and A. D. R. Fraser, president, Rome Cable Corp., informed employees recently. All employees who have been on the company payroll prior to July 10, 1946, excluding officers and others eligible for management group bonus, received a check equivalent in amount to 40 hours of work at base pay. All newer employees received a check equivalent to 20 hours of work.

Dividend Equals Stockholders'

In addition, Rome Cable paid on January 2 its thirty-first consecutive quarterly employee dividend. Under the company's Employee Dividend-Sharing Plan, started as of July 1, 1939, concurrent with the first dividend paid to stockholders, all employees with one year's service prior to July 1, 1946, participated at the same dividend rate as paid to stockholders. The total amount paid to each employee was the result of multiplying the rate of dividend by the number of his participating units, which in turn were determined by the simple formula of dividing his yearly earnings by the declared book value of the company's stock. Over $350,000 has been distributed since the start of the plan and dividends were paid regularly to employees while in military service. None of the officers or directors share in the plan.

The two executive officers, in informing employees of the more recent "glad tiding," in individual letters recommended them for their fine production record and cooperative spirit. It read:

"As informed in the employee dividend letter of January 2, the year 1946 has been one of many changes in physical location of departments throughout our plants. This has been part of our program to provide better working conditions for all of our employees, as well as to provide more efficient equipment layout to enable us to meet the stiff competition of the future. Despite the many difficulties that you have gone through, all departments have set new production records. This has been accomplished by all departments working together as a team and has been done even though many of our suppliers have had production interruptions due to material shortages and unsettled labor conditions.

"We are proud of the job that our volume and quality of production have done for us in improving our relations with our customers. It has been very gratifying to receive the fine words of praise regarding how our continuing ability to supply has helped them.

"At the start of the year we told you very frankly about the bad price situation that we were faced with, and despite good volume our earnings were at a low level. During the year this condition was modified, and your company has received a fair price for its products since May 8. As a result of better prices, your good production record, careful planning by management, and over-all cooperation of all departments of the business, our earnings have improved. Therefore, in appreciation of the fine cooperation that you have given under trying conditions we have decided to give all employees, who have been with us prior to July 10, 1946, excluding officers and others eligible for management group bonus, a check for 40 hours at base pay rates. Other employees, who have come with us since July 10, 1946, will receive a check for 20 hours at base pay rates. Payment will be made on Friday, January 10.

"In making this voluntary recognition we want it clearly understood that no precedent is established. This is merely a continuance of the policy that we have tried to follow consistently since the start of the company—to recognize a good job well done, that good earnings are necessary for the success of the company and that when the company is successful, employees, stockholders, as well as the community of which we are a part, should benefit. If you can continue to improve the fine production record you have established, if we can continue to have the fine team work between all departments and meet our mutual problems as they arise, we should have little fear for the future."

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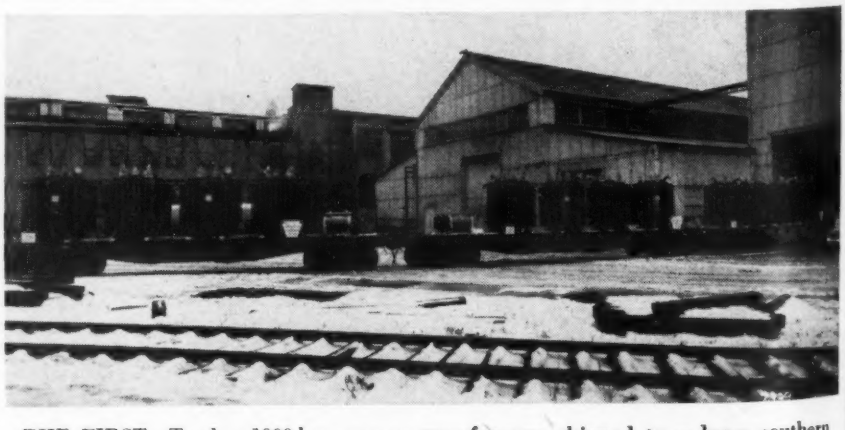
Moves Water Heater Unit

Announcement has been made that the Water Heater Division of the A. O. Smith Corp. has been moved from Milwaukee, Wis., to the company's new $3,500,000 water heater plant at Kankakee, Ill.



THE FIRST—Twelve 1000-kva. power transformers shipped to a large southern California electric utility were the first completed in the Pennsylvania Transformer Co.'s new plant in Canonsburg, Pa. The three flat cars are shown being pulled out of the power transformer building. Distribution transformers are manufactured in the two other buildings

Merchandising Foremost Thought in Modernization

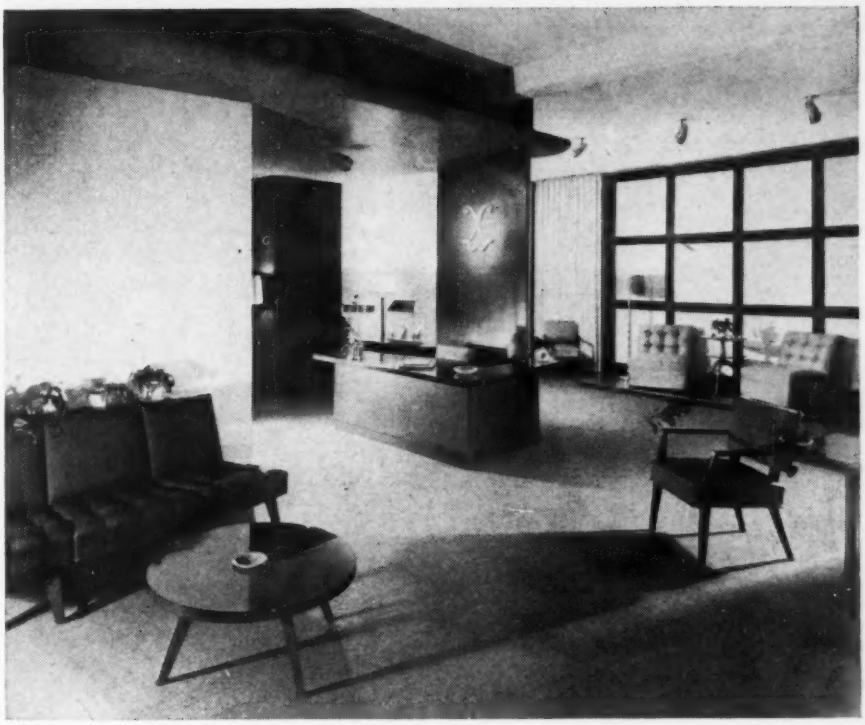
A modernization program involving more than six months' effort and an expenditure of over $100,000 has just been completed in the three-floor showrooms of Lightolier, Inc., in New York. In planning the new showrooms, both Lightolier executives and Robert Heller Associates, who designed the interiors, have kept uppermost in mind the merchandising and display needs of the major customer groups served by Lightolier.

Prior to this modernization program, Lightolier occupied only two floors in the same building. The addition of a third floor permitted realignment of the company's merchandise, so that the space is now apportioned as follows:

The first floor is devoted to lighting fixtures, for both commercial and home lighting, serving the architect, the decorator and the electrical trades.

The second floor comprises the Decorator Galleries, supplying exclusive lamps to the interior decorator and interior designer.

The third floor presents lamps for resale in department, furniture, and electrical stores.



EFFECTIVE HIGHLIGHTING—Bullet spotlights in the ceiling of Lightolier's new showroom effectively highlight the merchandise and the firm's insignia of crossed L's. Set off by the spot lights, the merchandise is displayed against a vivid color scheme of scarlet, bottle green, grey and bone white

Prolyt Distribution Rights Given to Aluminum Solder

Exclusive manufacturing and distribution rights in North and South America for a new and highly effective aluminum solder, called Prolyt, which uses no flux or flux substitute, have been given to the Aluminum Solder Corp. by Handex AG of Zurich, Switzerland, Hazard E. Reeves, president of the Aluminum Solder Corp., New York, has announced.

Walter Schaffner and Hermann Grunauer, Swiss engineers who developed the solder for Handex AG during the war to permit a wider use of aluminum and copper, which are not scarce metals in Switzerland, recently arrived in this country to assist in the establishment of a manufacturing plant and to act as consultants on the use of Prolyt.

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Doble Wins Patent Suit

The Doble Engineering Co., Medford Hillside, Mass., has received from the United States Circuit Court of Appeals, for the First Circuit, a favorable decision confirming a judgment and interlocutory decree of the district court in Doble's suit against the Leeds & Northrup Co., Philadelphia, in connection with alleged violation of patent rights covering insulation testing apparatus. This culminates nearly a decade of litigation by the Doble Co. against Leeds & Northrup.

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Humor Adds Zest to C.-D. Condenser Promotional Plan

A touch of humor does more than make the whole world kin. Cornell-Dubilier Electric Corp., South Plainfield, N. J., finds that it brings about good cooperation between manufacturer, distributor and service men.

In setting up the current jobber-service man campaign, "Let Yourself Grow," the company and its agency, Reiss Advertising, decided to adopt a humorous approach to plans that in themselves make plenty of good business sense and action.

The program is a complete package that includes mats, direct mail pieces, stuffers, circulars, decals, pennants, streamers, and matchbooks—plus a how-to-do-it manual. And through it all is a touch of humor that adds zip and interest to hard-headed business.

How successful the whole program is has been established by K. C. Burcaw, sales manager, jobber division, who reports it is a natural in getting customers "to buy condensers in groups."

Brown Adds 38 Men to U. S., Canada Engineering Staff

Brown Instrument Co., Philadelphia, has announced the appointment of 38 new sales and service engineers to 23 of its branches throughout the country and Canada.

"The assignments," according to W. H. Steinkamp, field sales manager for the Brown division of Minneapolis-Honeywell Regulator Co., "constitute another step to provide better customer service in the application of automatic control equipment. It is also part of a continuing program of sales and production expansion."

All 38 of the newly assigned sales and service engineers have just completed an intensive course in industrial instrumentation at the Brown Instrument School from which many industrial engineers have graduated during the past eleven years.

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Dampney Extends Research; Hunter Opens Own Agency

The Dampney Co. of America, Hyde Park, Boston, Mass., has announced the resignation of C. J. Hunter as technical director and concurrently its plans to assign to its engineering consultants, Arthur D. Little, Inc., Cambridge, re-

sponsibility for a greatly enlarged research and development program.

After many years' association with the Dampney Co., Mr. Hunter is establishing an engineering sales agency for the distribution of power and mechanical equipment and materials throughout the New England area.

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Manufacturers Make Sales Assignments

Electrical manufacturing companies have recently made the following appointments to their sales staffs:

WAGNER ELECTRIC CORP., St. Louis, has appointed Robert P. Smith, manufacturers' agent with headquarters at 304 Roberts Building, as its distributor in Jacksonville, Fla. Mr. Smith was formerly Florida manager for the Westinghouse Electric Supply Co.

WARD LEONARD ELECTRIC CO., Mount Vernon, N. Y., has appointed Storer and Schemm, Transportation Building, 307 East Fourth St., Cincinnati 2, Ohio, as its new industrial sales representative in southern Ohio, eastern Kentucky, western West Virginia and the counties of Clark and Floyd in Indiana.

C. P. CLARE & CO., Chicago, has appointed Clyde P. Elliott as sales engineer for the territory embraced by Colorado, New Mexico, Utah and Wyoming. Temporary headquarters will be at Hayden, Colo., with an office in Denver to be opened in the spring.

HUGH B. WILLIAMS MANUFACTURING CO. of Dallas, Tex., has announced that the Joslyn Companies, distributors of pole line equipment, have been appointed distributors of the Hole Digger on a nationwide basis.

ELECTRICAL ENGINEERS EQUIPMENT CO., Melrose Park, Ill., has appointed William R. White, 4916 Grand Ave., Omaha, Neb., as district representative in the Omaha territory.

BENJAMIN ELECTRIC MFG. CO. has named Carl O. Martin, formerly assistant manager of the Pacific Coast division, as manager of that division responsible for sales operations in the following states: Arizona, California, Idaho, Montana, Nevada, Oregon, Utah and Washington. Mr. Martin succeeds Miles F. Steel, formerly vice-president in charge of the company's Pacific Coast Division, who retires under the company's retirement plan after more than 35 years of continuous service. Raymond W. Corwin has been advanced to manager of the eastern division responsible for sales operations in: Alabama, Connecticut, Delaware, Washington (D. C.), Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont and Virginia.

SHELBY ELECTRIC, INC., Shelbyville, Ind., has appointed Eveready Electric Motor Service, New York, as distributor of fractional motors for the states of New York and New Jersey.

U.S.A. First Nation to Ratify I.S.O. Constitution and By-Laws; Work Started

The United States has become the first country to ratify the convention setting up the 25-nation International Organization for Standardization (I.S.O.), P. G. Agnew, vice-president and secretary of the American Standards Association, has announced. Action was taken at a recent meeting of the directors of A.S.A.

Dr. Agnew revealed he had received cable notice from Charles le Maistre, secretary of the United Nations Standards Coordinating Committee, which continues in existence until the I.S.O. office is set up at Geneva, Switzerland, that the United States was first under the wire with its official acceptance of the new constitution and by-laws.

"In a series of four international meetings covering a year, many misconceptions were swept away and a solid basis of agreement was reached on the part which international standards can play in freeing the flow of international cooperation," Dr. Agnew declared. "In the past, international standards were pioneered by engineering groups. Now organized industry is taking an active and vigorous role in all the countries, not only those that are highly industrialized, but also those which are using standards as a tool to speed their full entrance into the modern industrial world."

The pressure for standardization work which will aid the flow of goods in international trade has been so great, Dr. Agnew said, that scores of projects are being proposed for I.S.O. action.

The wide range of interest displayed was indicated, he said, in a list of 64 projects now accepted for I.S.O. action. Seventeen nations have accepted the technical leadership in forwarding one or more of these projects. In each case technical leadership in a given project will be taken by a country in which the industry concerned is well developed.

Among the projects, which have been accepted, are: timber grading and classification of defects; sheet and wire gages; aircraft and airfield lighting; copper and copper alloys; piping; shellac, and mica.

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Fractional Hp. Motor Output Sets New Post-War Peak

Production of household appliances and home heating units will be materially increased to a new post-war peak of 1,157,000 units by a 182,000 November increase in the production of electrical fractional horsepower motors suitable to these products, according to the Civilian Production Administration.

Total output of all types of fractional horsepower motors increased 125,000 in November, also establishing a new post-war production high of 2,261,741. The record November output brought the first reduction since V-J day in the huge number of unfilled orders for these motors.

While the increased output will aid in alleviating the critical supply situation in fractional horsepower motors above the fleapower size (1/20th of a hp. and under), CPA said that priority users of the type of motors used for warm air furnaces will require 90 to 95 percent of the anticipated production of this group during the first quarter of 1947.

Contributing to the mounting output was the industry's virtually complete reconversion from war to peace-time production. This reconversion represented a change-over from production of direct to alternating-current motors, which are required in refrigerators, washing machines and other peace-time products.

CPA priorities assistance, started in January, 1946, on production materials and capital equipment, helped the industry reach its high output.

Production of fractional horsepower motors during the last three months covered by CPA reports was as follows:

Month	Shipments Units	Unfilled Orders Units	Backlog* Months
September	1,907,932	39,684,941	21
October	2,136,840	41,886,662	20
November	2,261,741	39,767,381	17½

**Backlog is based on the respective month's rate of shipments*

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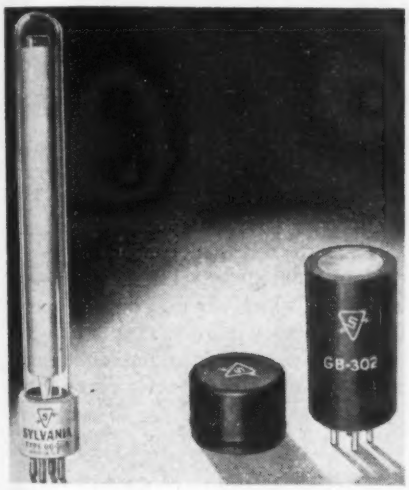
G. E. Orders Advance 12%

Orders received by the General Electric Co. during the year 1946 amounted to $941,881,000, an increase of 12 percent over the total of $844,540,000 for 1945, President Charles E. Wilson has announced. The 1946 total was more than double the amount of new business booked in any year prior to 1940.

NEW EQUIPMENT

Tubes for Detection and Measurement of Radioactivity

TWO NEW TYPES of Geiger-Mueller tubes suitable for a wide range of laboratory and industrial applications have been announced by the electronics division, Sylvania Electric Products, Inc., 500 Fifth Ave., New York 18, N. Y. The new tubes have been designed for use



by physicists, biologists, chemists, physicians, engineers, and others engaged in the research and practical application of nuclear physics.

When utilized with suitable auxiliary apparatus (not supplied), these tubes detect radiations emitted by radioactive substances by responding to the individual sub-atomic particles and protons comprising such radiations. Measurement of the intensity of the radiation is effected by counting the number of particles reaching the tube in a given period of time.

Ability to detect radioactive material makes the tubes particularly useful in the radioactive tracer chemistry techniques used in medical research and therapy, and in biological, geological, chemical and industrial research and applications, the company reports. Through the introduction of minute quantities of the appropriate artificially radioactive materials, complex chemical and physical reactions and processes can be studied to provide vital data unobtainable before the advent of applied nuclear physics. Other important applications include industrial processing control and safety warning and control where exposure of personnel to dangerous radiations presents a serious problem.

The beta-ray tube is designed to admit the high-speed electrons constituting the beta rays through a thin metal alloy window. Ionization of the gas in the tube by these electrons causes surges of current which can be detected and counted in auxiliary electronic equipment. Compactness of the tube and the location of the window permit convenient use as a probe in the manifold applications of this tube.

The gamma-ray tube, which has no window, is primarily designed to detect the presence of the gamma rays emitted by radioactive sources, but may also be used for cosmic rays, especially in coincidence work. Gamma rays entering the tube produce secondary electrons. The latter cause the ionization involved in the mechanism of detection.

Both tubes are styled for portability and convenience. They are of the non-self-quenching type and are intended for use with a standard quenching circuit, such as the Neher-Pickering circuit. Both tubes are gas filled.

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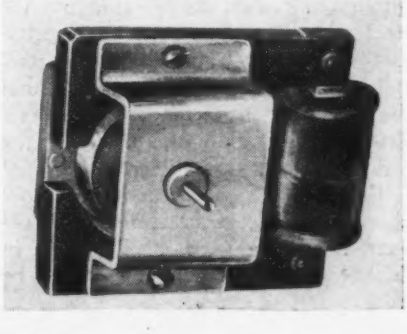
Miniature Motors Applicable To Various Voltages

A NEW miniature motor that operates on as little as 30-milliwatts power has been announced by the Alni Corp., 10 East 52nd St., New York 22, N. Y. It is a self-starting, permanent magnetic type and operates in any position. It is designed to operate in one direction only, regardless of polarity reversal of the d.c. supply.

These motors are manufactured with different coil windings for operation on various specified voltages, and various bearing designs are available to meet individual requirements. Model 2,000-2, illustrated, weighs 2¼ oz. and measures 1¾ x 1¾ x ⅞ in. They are offered for applications in the radio-electronic field, where the limited power source is a factor. They may also be used to drive cam-operated switches and small ventilator fans.



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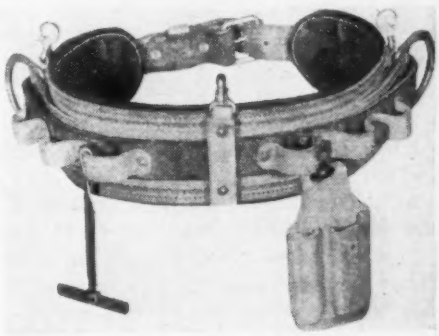
Linemen's Belts Utilize Leather Throughout

LINEMEN TOOL BELTS, safety straps and similar equipment have been added to the regular line of the Utilities



Safety Supply Co., 2944 Bales St., Kansas City 3, Mo. The belt illustrated is of the standard floating type, No. 1453L. It is made of harness and saddle lether which is lined with Latigo leather to make a 4-in. cushion. Pretested D rings, snaps, and buckets are utilized on all belts and straps.

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Railway Signal Lamps To Be Reduced in Size

A REDUCTION in the bulb size of all railway signal lamps now listed with the S-11 bulb to the S-8 bulb will be made by the lamp division, Westinghouse Electric Corp., Bloomfield, N. J., as soon as manufacturing facilities permit. This change does not, however, apply to railway light signal lamps. The efficiency, life, light center length, filament construction, axial alignment tolerances, and price remain unchanged, according to James D. Hall, head of the

lamp section in the commercial engineering department. The diameter and length are reduced 3/8 in. and the standard package quantity is reduced from 120 to 100.

The smaller bulb will facilitate relamping, minimize breakage, save storage and transportation space, make possible smaller auxiliaries and provide an easy means for distinguishing it from the railway light signal lamp, he stated.

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Insects Electrocuted By Portable Fixture

BUGMASTER, a portable fixture for attracting and electrocuting insects, has been developed by Engineered Products Co., Cincinnati, Ohio. The unit is weatherproof, can be used indoors or out and will accommodate bulbs up to and including the 200-watt size. It is designed for use on 50 or 60-cycle, 110-120 volt circuits.

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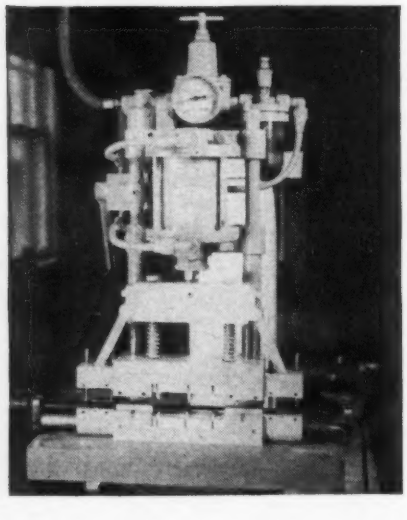
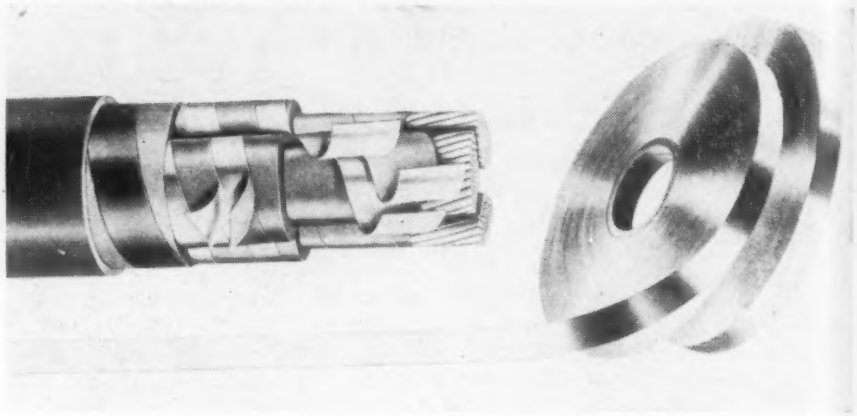
Machine Cuts, Strips and Slits 700 Conductors Per Hour

A NEW MACHINE, which cuts, strips and slits one or both ends of covered wires, with one, two or three conductor wires, in a single operation, and does up to 700 per hour, has been announced by the Williams Products Co., 515 Main St., Middletown, Conn. The machine is adjustable to any wire size up to ½-in. diameter, cuts to any desired length and strips up to 1½ in. It removes outside braid as well as the insulation.

It weighs approximately 75 lb., does not necessitate bolting to work bench, and requires a minimum of 60 psi. pressure for operation.



Paper May Replace Metal Shield in Power Cable



ELIMINATION of the usual supplementary metal shield over insulated conductors has been found possible by the use of a new metallized paper shielding tape now being produced by the Keller-Dorian Corp., 350 Fifth Ave., New York, N. Y., for use in oil-impregnated, paper-insulated cables.

Other advantages claimed for cables shielded with this tape are the barring of moisture diffusion into the insulation in factory or field exposure, higher dielectric strength, slower aging on cyclic loading, elimination of destructive ionization, and improved power factor stability.

Shielding with metallized paper tape alone has been standard British and Continental practice on "screened" cables for years. Now the experience of one prominent American cable manufacturer indicates this new tape can stand considerable tension, is undamaged in the cabling process, and provides complete and permanent contact with the insulation, Keller-Dorian reports.

Illustrated is a stripped section of a three-conductor, paper-insulated power cable which utilizes the new development and which shows how the metallized paper shielding tape is wound around each individual conductor and also around each conductor's insulation.

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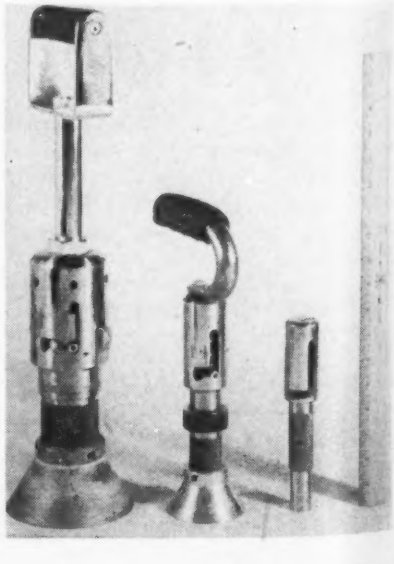
Tool Saves Time by Driving Studs in Steel, Concrete

A NEW HAND TOOL, utilizing the explosive power principle, that is reported to simplify securing bus duct supports to concrete and steel, securing conduit straps to concrete or steel, attaching angle iron or machine feet to concrete floors, has been announced by the Tempo Products Co., 402 Perry-Payne Bldg., Cleveland 13, Ohio. Called the "Tempotool," it was developed during the war for the services and is now being released to industry for fastening, installation and some production operations.

Power for the tool is provided by exploding a cartridge in an enclosed chamber or breach. In this respect, it is similar in its operation to a firearm. The explosion drives a pin or stud through the short barrel and into the steel with such force that the stud is "set" firmly in the steel, the company states. Laboratory tests indicate that the set stud, in some instances, resisted a direct pull of 20,000 lb., the company reports.

Three models of the unit are available: the "22" for attaching metal objects to concrete or steel ⅛ in. in thickness; the "38," which can be used with mild steel up to ⅝ in. in thickness; and the "45" for use on heavier jobs requiring penetration of mild steels up to 1¼ in. in thickness. Cartridge charges of three different powers are available for the "38" and "45." The 6-lb. tool is reported to pack a 20-ton punch and thereby to eliminate the necessity of drilling.



Motor Drive Automatically Controls Generator Voltage

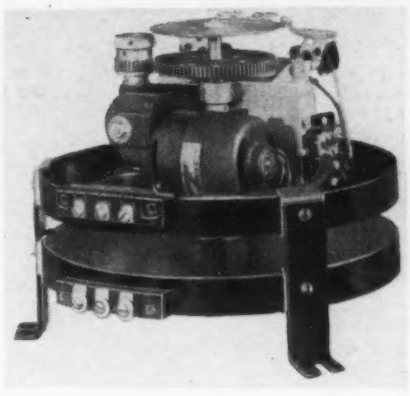
A NEW SMALL-MOTOR DRIVE for rheostats, called Supplemental Bulletin 60A Motor Drive Units, have been announced by Ward Leonard Electric Co., Mount Vernon, N. Y. The units are designed for remote and automatic operation of single or multiple stamped steel rheostats controlling generator voltages, motor speeds, lamp intensities, and other rheostat applications.

Available for a.c. and d.c., 115 or 230-volt operation, they are suitable for control of 13 SS rheostats up to three plates. Standard units have 30 or 60-sec. travel from the "all resistance in" to the "all resistance out" position, but can be furnished for shorter or longer travel time. Constructed on a 13-in. diameter steel plate, these small motor drives are intended for mounting on extended rheostat feet.

Included among the features reported are:

1. Adjustable limit switches, slip clutch and other parts readily accessible on removal of cover.

2. Dust tight spun aluminum cover affords protection against mechanical damage, dust, dirt, etc.



3. Cast mounting base for motor, gears, limit switches and drive shaft assures correct parts alignment at all times.

4. Motor provided with large, heavy-duty gear box.

5. Motor drive is compact in size, measuring 13 in. in diameter by approximately 7 in. high.

The units can be furnished for high speed return, with pre-settable limit switches, with longer or shorter travel time intervals and other special features.

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Motor-Driven Flash Welders Usable on Nearly All Metals

AN IMPROVED LINE of standard motor-driven flash welders has been announced by Progressive Welder Company, 3050 East Outer Drive, Detroit 12, Mich. These machines have been designed for precision flash welding virtually any metal, including aluminum, for long periods at high production.

They combine both "universal" and "specially engineered" features, making possible a wide range of applications without major alterations in the basic machines. Machines may be operated either a.c. through transformers, or d.c. through the use of storage batteries. All units—including all electrical and mechanical units—are enclosed within the machine frame for greater cleanliness and reduced maintenance.

Convenience of set-up and operation is one of the features. Entire machine control is from only one position. Platen travel speed for flashing and upset; flashing voltage; amount of upset; die openings, and other necessary settings can be made within a few minutes and once made, they are maintained to assure duplication of weld performance, the company reports.

Other improvements reported are the one-piece frame construction; multi-step taps on the transformers permitting 16 distinct steps from 30 to 100 percent of capacity; safety to operator and operating units through protective streamlining; easier loading arrangements; and improved cooling control.

The motor driven flash welders are available in four capacities from 20 kva. to 150 kva., or they may be battery operated for any welding job that is within the physical capacity of the machine. Upset pressures are 2,250 lb., 4,500 lb., 11,500 lb., and 19,600 lb. for the four machine sizes; maximum stock width, vertical fixture, is 2, 4, 6, and 8 in. and maximum tube O. D., vertical fixture, is 1, 1¼, 1¾, and 2¼ in.

Standard equipment furnished with all types of flash welders includes clamping fixture with one set of plain dies with hand or foot valve as desired; cone-drive speed reducer; upset mechanism with heat switch for energizing contactor for current on and off time. Such standard extras as air clutches, air pressure regulator and gage assemblies, and series parallel regulators are available.

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Newly Designed Eye Standard on Hubbard Line

A NEWLY DESIGNED EYE, called Hubeye, has been developed and established as the company's standard for rods, bolts, screws and other attaching techniques by the Hubbard & Co., 6301 Butler St., Pittsburgh 1, Pa. It will be used on all the company's products where a no-thimble eye is utilized.

The Hubeye design consists of a rounded section of large radius around which the guy is looped. High side walls support and maintain its round shape so that no individual wire strands are subject to excessive strain, it is reported. The eye is drop forged and is stated to be stronger than the rod section from which it is made. All inner surfaces are smooth and protected against corrosion by a double-dip hot galvanizing.

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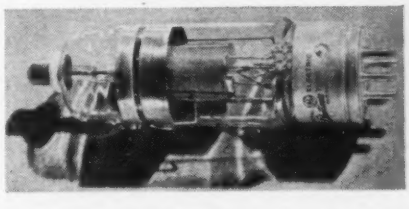
New Electronic Tube Has 3 Major Industrial Uses

A NEW ELECTRONIC TUBE, type GL-5545, with three major industrial applications where ambient temperatures range widely, has been announced by the tube division, General Electric Co.,



Thompson Road, Syracuse, N. Y. The three industrial applications mentioned are 220-volt, d.c., motor control, in grid-controlled rectifier service, and in separate-excitation ignitor circuits. Called "climate-proof" because of its ambient temperature ranges from minus 55 to plus 70 C., the new tube has a peak-to-average current ratio of 80 to 6.4 amp. and a high peak voltage of 1,500 volts. Its inert-gas content makes possible short heating time of 60 sec. The filament voltage is 2.5 volts and filament current is 21 amp. With long pin terminals, the new tube's grid structure is supported top and bottom to resist vibration and shock.

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Solenoid Motor Rotates Through 180 Degrees

ROTONOID, a new power device developed by Radio Condenser Co., Camden, N. J. operates as a solenoid except that it rotates through 180 deg., thereby producing torque instead of a thrust, and thereby eliminates the necessity of connecting linkages. The armature of this unit is so designed that it maintains a constant heavy-duty torque throughout its entire 180-deg. travel,

the company reports. Originally designed for the operation of radio tuning units, it has widespread application in many fields ranging from electromagnetic valves to adding and calculating machinery, it was stated. The entire unit is self contained, is approximately 2½ in. by 2⅝ in., 3¼ in. in height, and weighs 10 oz.

Units now in production have a torque of 16 in.-oz. and can be operated continuously at 20 cycles per minute. Where faster action is advisable, they can be used at 60 cycles per minute for periods up to 12 minutes on 115-volt, 60-cycle alternating current, the company reports. When the unit is equipped with a current interrupter operating automatically at stroke completion, the temperature rise may be held to a minimum. This means may be employed to energize the coil for the necessary time only. A relay attachment for this purpose is available.

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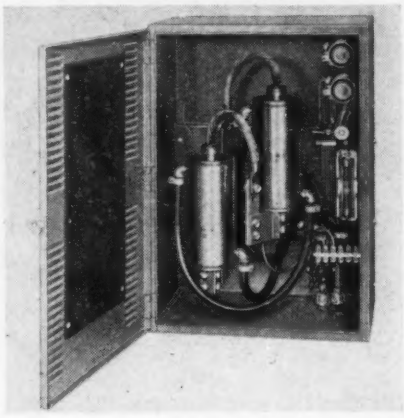
Equipment Positioner Solves Holding Problem

A UNIVERSAL work positioner to hold and position virtually all kinds of bench work for faster production, assembly, service and maintenance operations, is now in mass production by Garfield Engineering Corp., Kansas City, Mo. The "Powrarm Universal Positioner" is reported to increase efficiency and productivity of the worker by permitting him to work with both hands free, to conserve workman's energy, and to reduce possibilities of injury or damage.

It affords ready access to all sides of the work. It holds light or heavy work and permits turning 360 deg. at any angle or horizontal or axial planes and 180 deg. on the vertical plane. After position has been changed, the work is held locked in position by an adjustment on the pressure control knob. The unit is available in both hydraulic and mechanical models.

New Electronic Contactor For Resistance Welders



FOR RESISTANCE WELDING JOBS involving high speed operation or heavy primary currents of short time duration, the industrial control division, Square D Co., 4041 North Richards St., Milwaukee, Wis., has developed a new line of electronic contactors using ignitron tubes. These electronic contactors are offered to supplement the Syncro-Break and High Speed magnetic contactors.

Design of the new Class 8990 electronic contactors provides increased wiring space with power connections made near the center of the enclosure allowing minimum bending of power cables, the company reports. The contactor is assembled on a removable steel base plate. All control elements are grouped at the right-hand side away from tubes and cables and out of the path of any dripping from water condensation on tubes and hoses.

Cabinets are heavy sheet steel with ventilating louvres in the door and drain holes in the bottom. Flat door construction is used to permit close ganging of contactors and provide maximum utilization of space.

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Universal Channel Fluorescent Fixture

A NEW fluorescent channel light for commercial and industrial use and occasional lighting in home workshops, garages, etc., has been announced by Electricraft Corp., 42 Clifton St., Newark 5, N. J. The new lights can be used individually, in gang fashion, or butted together for continuous strip lighting. They also may be adopted for use in offices, plants, showrooms, stores, display windows, and for trough lighting where special effects are desired, the company states.

Construction features reported include a rigid design of heavy-gage, rustproofed steel electrically welded throughout and finished with a special white enamel. Ends are trued and squared to provide for fitting in strips or any architectural plan.

Lamp socket and starter holder are stated to be shock and vibration proof. The units are available in three models: 20-watt single lamp; 40-watt single lamp; and 40-watt two lamps.

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Carrier Telephone Capacitor Withstands 95-Kv. Impulse

COUPLING CAPACITORS for connecting telephone equipment to 7.2-kv. distribution circuits have been designed to withstand impulses of 95 kv., the Sprague Electric Co., North Adams, Mass., reports. The company reports the units are designed to withstand ten such tests and to handle lightning discharges on the line without damage to the capacitor. Present units are 0.002 mfd. and are rated at 8,700 volts. The company is working on other capacity and voltage ratings.

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Appliance May Be Heater Or May Be Fan

A UNIT so designed that it can be converted from a heater to a fan in a matter of seconds has been announced by G-M Laboratories Inc., 4300 North Knox Ave., Chicago. The unit, called the Surf Season-Air, is the lead-off product in a new line of household appliances bearing the "Surf" name.

The double-duty feature is obtained by means of a detachable heater housing. With the housing in place, the appliance is a 1,320-watt forced air heater which circulates 140 cu. ft. of warm air per minute. Heating coils are protected.

For warm weather use, the complete heater housing can be removed and the appliance then becomes a three-blade fan delivering 500 cu. ft. of cool air per minute. The unit weighs 9 lb. 6 oz. and operates without radio interference.